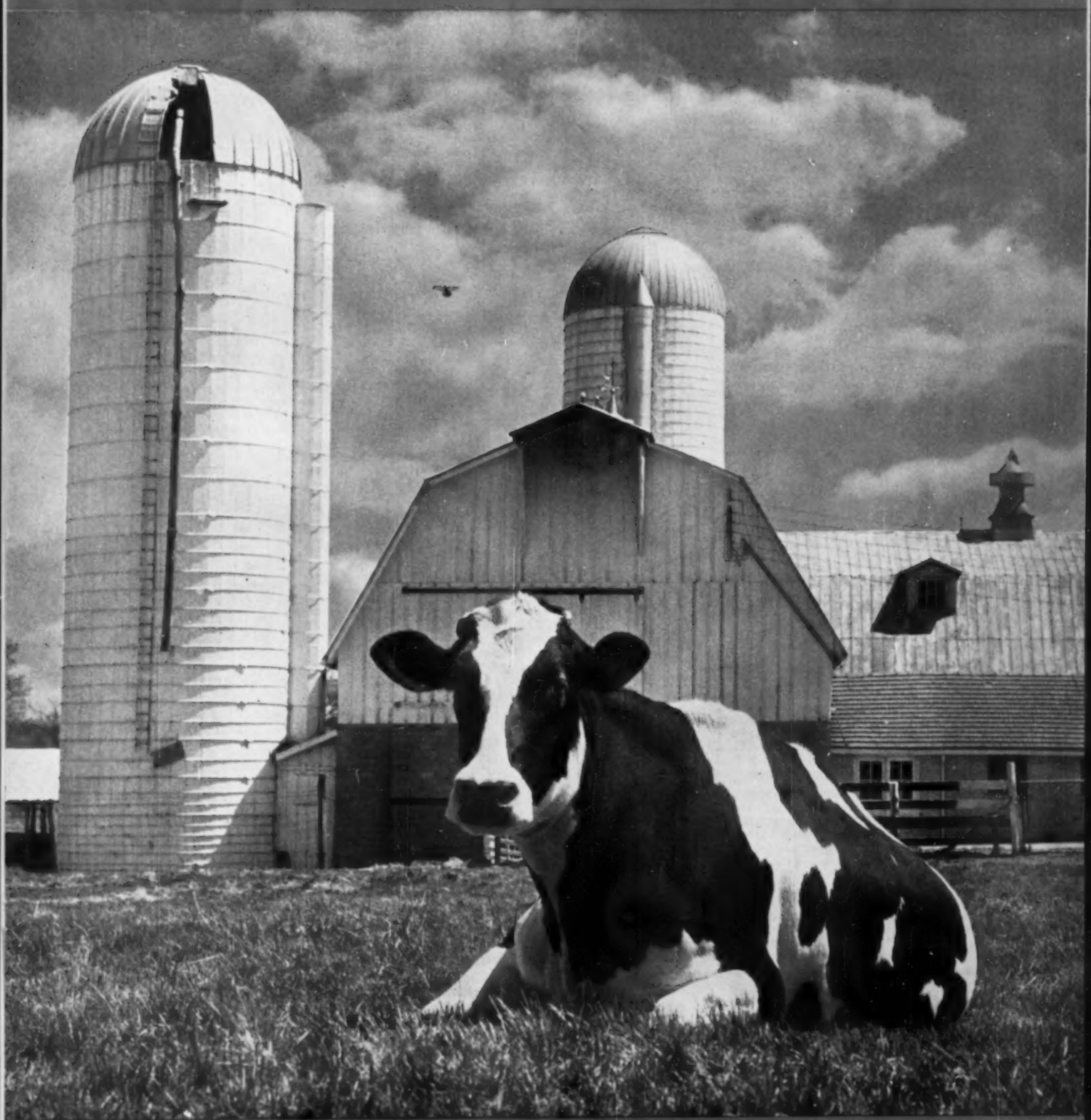
HOARD'S DAIRYMAN

MAY 10, 1961



THE NATIONAL DAIRY FARM MAGAZINE

A Statement Concerning Patents Granted on CHORE-BOY Herringbone Milking and Feeding Systems

by Don E. Golay

DON E. GOLAY
President CHORE-BOY Manufacturing Company

Since the Herringbone system of milking and feeding dairy cows is now generally recognized as the most important development in many years for more profitable dairy operations, a review of the facts leading to this development and the granting of Patents No. 2,942,574 and 2,969,039 to the Chore-Boy Manufacturing Co. is timely.

My Trip Around the World Paid Off

In the fall of 1956 I made a trip around the world, visiting leading dairy countries in a search for ideas that might be helpful to our dairymen.

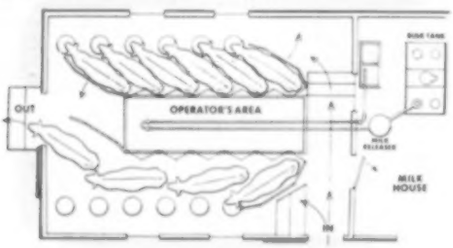
In New Zealand I was impressed with the Herringbone system in use on a number of farms. I saw cows elevated and handled in groups and being milked at the rate of 60, and even more, cows per man, per hour, and the operator doing an excellent job of milking and standing in an upright position while doing so.

The more I studied this new way of handling and milking cows in groups the more I could see the tremendous advantage this Herringbone system would bring to our dairymen, if it could be adapted to meet our conditions.

Different Conditions In New Zealand

In New Zealand, where pipeline milking was first developed, cows are on grass the year round, little or no grain is fed, and none at milking time.

To be practical, under our conditions we needed a grain feeding method that would work in connection with the Herringbone stalls, which was somewhat complicated, since the operator stands to the rear of the cow. We also needed a better method of sanitation control. Consequently we have presented a greatly improved system over the New Zealand conception.



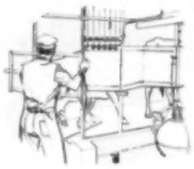
CHORE-BOY Made the First Herringbone Feeding System

Immediately on my return home in November 1956, we started work on a new approach to the Herringbone system with a method of feeding and other improvements, such as the splash shield, over the New Zealand type of Herringbone arrangement which had no way of protecting operator or operator's area from soiling.

The result was a row of individual mangers, each with its own individual feeder, from which feed could be metered, in any desired amount, for each cow, by simply operating a control from the operator's area. Since these controls are operated as the cows are taking their positions in the Herringbone area, *no additional time is required for feeding.*

Saves 100% of Feeding Time

The sensational milking results obtained by the Herringbone system have overshadowed the time saved in feeding with the Chore-Boy Herringbone system, but this is a very important advantage.



There are, today, many Chore-Boy Herringbone systems in use equipped with Chore-Boy auger feeding systems, in which grain is moved from a bulk feed storage bin, automatically, to each individual manger, *so that the operator does not handle a single pound of grain by hand, or require one additional minute for feeding.*

Since cows know they will be fed when they enter the Chore-Boy Herringbone system, they are eager to do so and take their places in a surprisingly short time. Thus group movement of cows is done in the least time. The individual feeding mangers are also an aid in proper and quick positioning of the cows. Feeding at milking keeps cows contented and relaxed and is an aid to faster let down and faster more complete milking.

CHORE-BOY Made Other Herringbone Improvements

In addition, Chore-Boy made improvements in Herringbone design and construction. The continuous splash shield serves three functions: (1) Protects operator and operator's area from soiling, (2) Helps position cows properly and promptly. This is very important since proper operation of a Herringbone system is dependent on the exact position and angle the cows take, (3) The continuous shield shuts off the cow's vision of the operator and operator's area. Her attention is not diverted and she has a greater sense of security, which contributes to better milking.

The Chore-Boy arch over each cow's manger prevents her from raising her head while eating and wasting feed by spilling it out of the manger, yet she is free to move and raise her head when through eating.

The entire system is strongly constructed and is hot dipped galvanized for long service. It is easy to keep in a clean and sanitary condition.

CHORE-BOY'S Success Attracts Other Manufacturers

Since the conception in 1956 of the new Chore-Boy Herringbone milking and feeding system, response was sensational and many dairymen immediately recognized the great advantages of this system. As a result, thousands of Chore-Boy Herringbone Pipeline Milking Systems are in use in U.S.A., Canada and other countries.

Although Chore-Boy stated that patent applications were being made, other manufacturers, observing the success of the Chore-Boy Herringbone, offered Herringbone systems for sale.

From a study of Patents No. 2,942,574 and 2,969,039 granted Chore-Boy concerning features on feeding, cow position, operator protection and other points of the Herringbone system, it now appears to us that most, if not all, of these manufacturers are now infringing on the Chore-Boy patents and we believe, in most cases, unknowingly.

Willingness To License Other Manufacturers

Chore-Boy has no desire to retard, restrict or monopolize this business, or to work a hardship on any manufacturer and is willing to license established and reputable manufacturers to use certain features involved in Patents No. 2,942,574 and 2,969,039.

U. S. Government Report No. 45 Proves Herringbone Advantages

To obtain accurate information on Herringbone milking, the Agricultural Research Service of the U. S. Dept. of Agriculture made a thorough study of 51 Herringbone Milking Systems in operation in 18 states. Every part of the milking operation was timed and results are published in Report No. 45, a 40-page book entitled "The Herringbone Milking System, Economic Appraisal, Labor Efficiency Analysis and Adjustment Possibilities". The Report answers many questions concerning this system and gives conclusive evidence of its many advantages. Chore-Boy has been granted permission to reproduce this Report in its entirety, without change. We will be pleased to send you a copy free of charge, on request.

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- ☐ Roll-O-Measure
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- ☐ Lactorium
- ☐ Roll-O-Clean Releaser
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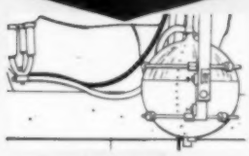
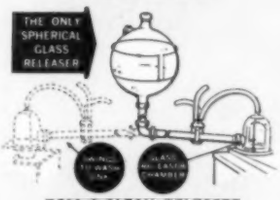
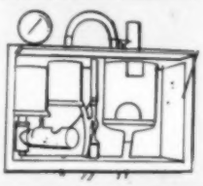


ROLL-O-MEASURE



ROLL-O-CLEAN RELEASER



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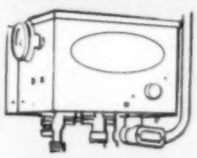
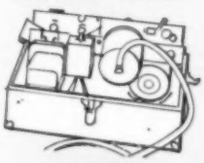


AUTOMATIC WASHER



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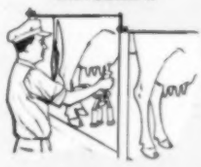


HERRINGBONE MILKING SYSTEM

PIPELINE MILKING SYSTEMS FOR ANY BARN

NON-BRIDGING BULK FEED BIN

CHORE-BOY LACTORIUM

CHORE-BOY LOW-VACUUM MILKING SYSTEMS

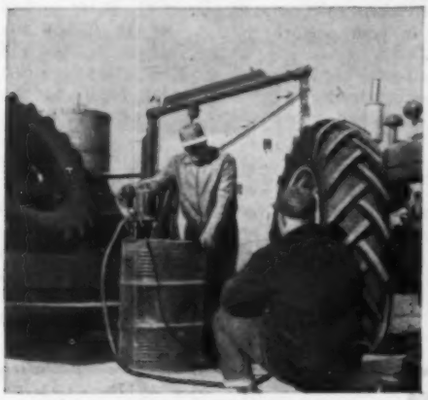
GOODYEAR "EXTRA HAND" SERVICE AT WORK:

"A quick phone call saved me half a day"

says Murray Verity of Emerald Farms, Delaware, Ohio

1 THINGS LOOKED BAD when "Bud" Verity's tractor tire punctured one morning in the midst of corn picking. That could have cost him half a day running into town for repairs. Instead, he phoned for Goodyear "Extra Hand" service.

2 8 MILES AWAY in Delaware, Ohio, Goodyear Dealer Vann B. Smith took Verity's call. His truck was already loaded up and ready to roll. A few quick questions to help in diagnosing the trouble and he was on his way.



3 JUST 20 MINUTES LATER and Smith was already on the job at Emerald Farms, pumping out the solution before repairing the tire. On the truck is the free "loaner" supplied whenever a tire needs "shop" repairs.

4 ONLY ONE HOUR AND A HALF after the accident happened, Verity's tire has been expertly repaired and he's headed back to work in his corn field. "I'd have lost at least 4½ to 5 hours if I'd had to demount my own tire—run it into town—wait around for a repair—bring it back and remount it," he says.

GOODYEAR "EXTRA HAND" FARM TIRE SERVICE

1 Check, change and repair any type tire.
2 Furnish "loaners" while your tires are being repaired or retreaded.
3 Take care of your battery needs.
4 Liquid-weight your tractor tires for maximum traction.
5 Minimize down time through expert help on tire maintenance.

AND REMEMBER—"Extra Hand" service isn't all you get from your Goodyear dealer. Whenever a new tractor tire's called for, he equips you with unmatched Sure-Grip quality: the toughest of rubber compounds teamed with exclusive Triple-Tempered cord and ground-gripping, ruler-straight treads for outstanding tire performance. Reasons enough to call your Goodyear dealer first! Goodyear, Farm Tire Department, Akron 16, Ohio.

Sure-Grip—T.M. The Goodyear Tire & Rubber Company, Akron, Ohio

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GOODYEAR

MORE FARMERS PREFER GOODYEAR TRACTOR TIRES THAN ANY OTHER KIND

Choose either the popular 3-T Sure-Grip or extra-quality Traction Sure-Grip tires, both out-in-front performers.

STAINLESS STEEL

standard for Wilson Ice-Bank and Direct-Expansion Bulk Milk Coolers

Wilson has concentrated on 18-8 stainless steel for Ice-Bank Bulk Milk Coolers . . . making possible new lower prices. This move is in line with Wilson policy—to give you extra value, dependable operation, easy cleaning and maintenance, maximum protection and safety. You can depend on Wilson, an old hand in the milkhouse!

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Model WBS-300

The exclusive Wilson Watchman Drop-In Unit is probably the biggest Wilson extra—assuring you the very maximum protection under all conditions. Builds up and maintains ice-bank in separate compartment. Easily removed. Cannot freeze milk. Models available from 100 to 700 gallons capacity.

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Model WDEX-400

Wilson Milk-Guard offers exclusive new Full-contact Cooling, highly effective new foam-in-place insulation, many other features to protect your investment and keep cooling costs down. Compact in design . . . saves space in milk-house! Sizes: 250, 300, 400, 500 gallons.

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Model EC-7

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HOARD'S DAIRYMAN

The National Dairy Farm Magazine

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COVER PICTURE

Kentucky and bluegrass go together like bread and butter. And our comfortable Holstein matron pictured here is at ease on permanent bluegrass pasture near the dairy barn on the Von Allmen Dairy Farm, Louisville, Ky. She and her 135 herdmates get early spring grazing from bluegrass but will soon move to a higher-yielding pasture of orchard grass, Kenland red clover, and Ladino. Alfalfa silage will supplement summer grazing. In winter, corn silage will supplement alfalfa hay. In return, the herd averages close to 12,000 pounds milk and over 400 pounds butterfat.

This is a Hoard's Dairyman staff photo.

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Unwholesome, immoral and questionable medical advertising is excluded. A sincere effort is made to carry advertising of only reliable people. We will always take it as a favor to be notified promptly whenever any advertiser's dealings with the subscribers are not in good faith or evidence a lack of business honor. Advertisers recognize the readers of Hoard's Dairyman as an up-to-date class of farmers, and we hold our columns for the patronage of only those with whom our readers can deal with profit and satisfaction.

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Washington Dairygrams

NEW FARM BILL SENT TO CONGRESS BY PRESIDENT. FOLLOWS PATTERN PREDICTED, REQUESTS ENABLING LEGISLATION. DAIRY PROVISIONS INCLUDE:

1. EXTENDS MARKETING ACT, UNDER WHICH FEDERAL MILK ORDERS ARE ESTABLISHED, TO ALL COMMODITIES.
2. IN ALL ORDERS, RESEARCH AND DEVELOPMENT PROJECTS (INCLUDING ADVERTISING) ARE PERMITTED.
3. ANY OR ALL PRODUCTION AREAS COULD BE INCLUDED IN A MILK MARKETING ORDER. IN THE CASE OF ALL AREAS, MUST HAVE CONSULTATION WITH ADVISORY COMMITTEE.
4. YEAR AROUND BASES OR QUOTAS COULD BE USED.
5. SECRETARY COULD CREATE NATIONWIDE MILK ORDER WITH OR WITHOUT QUOTAS. IF DAIRYMEN VOTED IT DOWN, THE PRICE SUPPORT LEVEL COULD DROP TO 50 PER CENT OF PARITY.
6. IF SURPLUSES BECAME TOO HIGH, SECRETARY COULD PROCLAIM BASE OR QUOTA PROGRAM. SHOULD DAIRYMEN REJECT, SUPPORTS COULD DROP TO 50 PER CENT.
7. FARM INCOME AND PRICES COULD BE SUPPORTED NOT IN EXCESS OF 90 PER CENT OF PARITY. SECRETARY GIVEN WIDE DISCRETION IN METHODS OF SUPPORT.
8. ANY NATIONWIDE ORDER OR REGIONAL ORDER WITH QUOTAS MUST RECEIVE CONGRESSIONAL REVIEW BEFORE FARMER REFERENDUM FOR PROGRAM TO BE EFFECTIVE.
9. COMMODITY ADVISORY COMMITTEES WOULD BE NAMED BY SECRETARY FROM NOMINEES MADE BY ASC COMMITTEES AND FARM GROUPS. ONE CONSUMER WOULD BE NAMED.

PROSPECTS FOR PASSAGE DIFFICULT TO PREDICT BECAUSE THE PROPOSAL SO ALL ENCOMPASSING. IF EARLY APPROVAL NOT GIVEN BY CONGRESS, LOOK FOR WHEAT AND FEED GRAINS BILLS TO REPLACE OMNIBUS BILL.

MARCH MILK FLOW SET NEW RECORD OF 10.8 BILLION POUNDS, 2 PER CENT ABOVE LAST YEAR.

FIRST CLASH BETWEEN DAIRY GROUPS AND SECRETARY COMES ON ISSUE OF HOW TO PAY FOR SPECIAL MILK PROGRAM. SECRETARY WANTS ANNUAL APPROPRIATIONS INSTEAD OF USE OF C.C.C. FUNDS AS IN PAST.

★ ★ ★

In YOUR next issue!

MASTITIS CONTROL MEANS MORE MILK . . . In a Wisconsin field test 20 herds went up 40 pounds of fat per cow. Because it was so successful another project involving an entire milkshed is underway. Every dairy-farmer will be interested in reading about this mastitis control program.

ARE YOU READY FOR FLIES? . . . Here are the up-to-date recommendations on fly control for 1961. Be sure to see this article, which tells how and when to apply the various insecticides, repellents and other fly control chemicals.

KILL THE WEEDS — NOT THE CORN . . . The various steps to proper cultivator adjustment are explained, and well illustrated, in this discussion which will increase your corn yields.

THE WAY TO GROW OUT HEIFERS . . . Our feeding column summarizes tests showing that underfeeding causes a delay in breeding heifers, while over-fattening doesn't pay. Don't miss it!

THE BRIDE'S FIRST WEEK IN THE KITCHEN . . . What to buy, what to cook, and how to prepare simple dishes, to help make a happy home.

AND MANY MORE . . .

GEHL 72 CHOPPER

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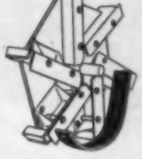

2 UNITIZED FAN BLADE AND KNIVES — Crop is re-cut by unitized knife and fan blade cutter head with adjustable shear bars. Gives effective cut-and-throw action. Fan threshing is eliminated.

3 EASY KNIFE ADJUSTMENT — Simply open the blower housing. Cutter head fan blades and knives are easily adjusted to meet your chopping requirements. All you need is a wrench.

6-FOOT CHOPPER AT A 5-FOOT PRICE

That's right. Gehl's 72 Chopper cuts a full six-foot swath. Gives you up to ⅓ more capacity than many so-called five footers — and sells for less than many of those same machines. The 72 Chopper puts 39 razor-edged flails into the crop. Cuts cleaner than a mower . . . gives you the fine, short-length cutting that means better quality feed.

Capacity and price aren't the only reasons more farmers prefer the Gehl 72 Chopper. Look at the exclusive features you get. New Quick-Change flails. They're reversible and interchangeable for longer life. There's the unitized fan blade and knives. And fast, easy knife adjustment to meet any chopping requirement.

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Opinions, Brickbats, Bouquets

These columns are open to the readers of Hoard's Dairyman for the expression of their opinion on any subject, whether radical or conservative, destructive or constructive, wise or foolish, critical or commendatory. Hoard's Dairyman assumes no responsibility for opinions expressed.

Foolish costs

I was very much interested in the article, "The cost of a glass of milk," which reported the findings of a U.S.D.A. study. I think this was extremely foolish — trying to cover up the charges for a glass of milk.

The processors and cafeteria owners would have us believe that they add to the value of milk by heating, adding vitamins, even adding good taste and better smell. I am amused by all the "hard labor" involved in serving it. Did they add the cost of the hard labor of puting the 12 cents in the cash register? How about the hard labor of carrying the money to the bank?

I recently bought a glass of milk in a cafeteria and only had to pay 5 cents.

Iowa NORBERT RIEHLE

Road to corporate control

Over the past several months I have read a considerable amount of history on the rise and fall of nations with an eye toward the role in agriculture. Granted, this does not make me an expert, but the single, most-outstanding fact that shows through, time after time, is that countries go down when family farmers lose their independence and become slaves.

I have not yet read of a country, in which the families owned and operated the land, that either went hungry or fell, and would like to hear of a case if someone can point it out.

Although I have not traveled in China, India, and South America, I am inclined to believe if individual families owned and operated the land there, they would not be hungry.

The thing we need to fear in this country, in my opinion, is that we are traveling the road to corporate control in agriculture. Vertical integration, when operated by the feed-food corporate interests, is leading to single-crop farming. This may be either producing the single crop of corn, broilers, laying hens, milk (cow pools), hogs, and on down the line.

While we must recognize there might be labor efficiency in doing these things, it is not in keeping with the laws of nature to separate farm operations in this manner. It was single-crop farming which ruined Rome and other Mediterranean countries. And, if I read it correctly, we cannot stand it either.

Illinois C. F. MARLEY

In defense of bull

I would like to put my 2 cents in with regard to the short humorous item, "Can you afford a bull?" in the March 10 issue. I agree that a bull can accomplish the 10 points given but the writer seems to have forgotten No. 11, that being that he might manage to get most of the cows settled on time.

We breed our best cows artificially for herd replacements and use our own bull on cows from which we will sell calves. We once considered going all artificial but, in looking over records and comparing conception rates, we found our bulls have a much more favorable rate.

Artificially, we sometimes must breed cows three or four times before settling, putting them back months in our breeding schedule. We figure we can breed 40 of our 50 cows with a bull and be money ahead because we save much in breeding fees, get more milk because cows settle earlier, and then we can sell the bull for a fair price.

Michigan DALLAS BERCHMEIER

". . . dregs of humanity"

In your very excellent magazine you had a recent editorial comparing the ratio of heart disease and failures in the U.S. to other countries, and also the ratio of use of milk, butter, and other fats. I believe that you have overlooked the most important factor in heart disease and that is heredity.

No one, save a dolt, would think of mating a Hereford and an Angus to produce a milk cow. However, heredity is seemingly to be disregarded in humans for reason incomprehensible to me.

In comparing our country with other countries, we must certainly take into consideration the hard and brutal facts that our country (the U.S.) is composed of, almost without exception, the dregs and scum of other countries of three continents.

Here we have assembled the offspring of the avaricious, the swashbuckler, the indolent, the nonconformist, the incorrigible, the religious nut (I hasten to add that I refer to them as religious nuts, not because of oddities of doctrine but because these religious groups almost without exception, while demanding freedom for themselves, refused to allow freedom to any other religion), and, in general, the trash, filled with wanderlust, that drifted to these shores from the back alleys and slums of their respective countries.

One cannot expect these types of obviously unhealthy people to produce a healthy nation any more than one can expect an Angus to produce a champion milk cow.

You may ask: What has wanderlust to do with heart disease?

It has been proven that emotional factors are so interlaced with health that the two are inseparable.

As a boy, I recall the hoboes, bums, or whatever name you wish to give them. At that time I thought their ragged, unkempt appearance was due to poverty or ignorance. It was not until much later that I realized these unfortunates, drifting aimlessly about the country, were victims of no economic conditions but were simply sick, either emotionally or physically, or both. As I said before, they are so entwined that even an expert cannot separate the two conditions.

So it was, probably to a much lesser degree, with the settlers of this land, they being only one degree less ill than the hobo. How can you expect such people to produce perfect physical specimens?

Take this factor into consideration and you can see why we also have the highest crime rate of any

(Continued on page 468)

Why pay more? Improved Farmhand Hay Conditioners have all the features!

PRICED $50 TO $200 LESS THAN MOST OTHER HAY CONDITIONERS Farmhand's Model F-96 gives you all the features—and then some! Efficient 7' swath. Has all three adjustments necessary for positive hay conditioning: (1) roller spacing (2) roller tension (3) ground clearance. These adjustments allow you to tailor action of the F-96 to your particular terrain and hay conditions. They can be made quickly in the field, without special tools. Ruggedly built by Farmhand, the F-96 has channel steel frame and 15" wheels. So beat the weather and put more food value into each bale by conditioning your hay the Farmhand way.

SPECIAL STUDDED STEEL ROLLERS of Model F-96 crimp and crush hay so stems dry out with the leaves. This combination action makes small stems more palatable and speeds curing without clipping or shattering. Large diameter rollers are PTO-powered through heavy-duty drive, protected by friction clutch. Optional rubber upper roller is available.

IF YOU PREFER CRIMPING—The Farmhand-Oppel Model 80 Hay Conditioner utilizes smoothly meshing steel angles to give thorough crimping, quiet running. Action is firm, but does not shatter leaves. Handy crank raises or lowers rollers to proper ground clearance. Heavy-duty drive mechanism protected by safety clutch. Optional gauge roller prevents gouging over borders or high spots in uneven fields. Optional wings form narrow, fluffy windrow.

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Make of your present milker_____

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Here's an offer you won't want to miss. This new book on pipeline milking is yours for the asking – just fill out the coupon and mail.

"Your Pipeline Milking System," 24 pages in color, is loaded with helpful illustrations ... packed with the kind of information you should know *before* you invest in a pipeline system.

Everything you need to know about pipeline milking is here, including: what to consider in planning your pipeline system ... milking in a stanchion barn ... stanchion barn with milking parlor ... stanchion barn milking and loose housing ... plus, side-opening, U-shape, walk-thru and herringbone milking parlors. Complete data is given on the number of cows you can milk with each system, time and labor savings, and important advantages of each milking system.

This planning guide was prepared by De Laval, manufacturer of the Combine Milker® ... the pipeline used by more dairymen than any other make. Fill out the coupon now and mail today! We promise you'll be glad you did. Address the De Laval office nearest you: The De Laval Separator Co., Poughkeepsie, N. Y., or 5724 N. Pulaski, Chicago 46, Ill., or 201 E. Millbrae Ave., Millbrae, Cal.

DE LAVAL

DE LAVAL COMBINE MILKER®

(Continued from page 466)

country on earth, more lunatics, more suicides; in fact, the most undesirables.

Humanity has always been going through the winnowing process. The worthless chaff and worthless grains are blown to other countries while the solid, wholesome, sound grains fall back to the earth and remain there. So it was with the colonization of America.

Ohio B.G.

We can sell more

I have been a reader of Hoard's Dairyman for a good many years, and I like it very much. It is full of timely and valuable information for the dairyman and I would not be without it.

Recently I read two articles that I do not fully agree with. The first one had to do with selling milk in which the author states that, in his opinion, there is not much more to be done in the way of advertising and promotion of dairy products than is already being done. I do not agree.

Take butter, for example. How many companies which manufacture it print recipes on the carton or wrapper suggesting new or interesting ways to use it?

How much research has been done on the possible benefits to health of using butter liberally in our diet? Or is oleo fortified with vitamin A and all other vitamins known to be in butter just as good as butter and so-o-o-o much cheaper? Oleo also requires a preservative, such as citric acid, to keep it from getting rancid.

How about milk? Is the soft drink business, with its clever advertising, making greater inroads every year into a great potential market for much of our milk; namely, the teenagers and young adult group? Maybe we need to develop some new products and new methods of promoting them.

Sure we teach our children in school about the health benefits to be derived from using milk regularly in our diet with possibly some general recommendations as to how much we should use daily. But do we also warn them about the dangers of excessive use of soft drinks?

I have no quarrel with the person who likes soft drinks as long as he knows what is in them and what they are doing to him.

In closing, I would comment on the two-price plan for milk. If we can somehow convince people that an extra glass of milk a day will be a benefit to their health, we will have no need of it. To me, as a dairyman, this is basic.

One more thing. Are we pricing milk too high for families with several growing children and low to moderate incomes? Maybe we need a larger discount on quantity sales than we have at present. Our family uses up to eight quarts or more daily, which would cost us at least $2 a day or $60 a month to buy. I think it is one big reason sales of fluid milk have held about even or fallen slightly in recent years. Many families could not justify that large an expenditure for milk unless it was proven to them to be practically a form of health insurance.

Pennsylvania J.R.

You can cool milk in this tank from the Granddaughters of your present herd...

That's right! The Solar Bulk Milk Tank is built to last . . . . built to make your first tank investment a lasting one! Solar uses all 18-8 stainless steel . . . . no mixed metals in tank shells, coils and lines that help create corrosion and shorten tank life. What's more, Solar's controlled flow expansion system plus the largest cooling plate of any tank give you quick, low-cost cooling. Here's something else . . . . the Solar Program completely spells out the extra values of financing, servicing, and warranties that can be yours. Before you buy, write direct or get the full story from your Solar Dealer on the bulk milk tank that's BUILT TO LAST!

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Send me more information on the Solar Bulk Milk Tank Program. I am now milking_____cows.
Please send information on the following Solar products:
☐ Portable Pipeline ☐ Lo-Por Strainer ☐ Vacuum Tank

Name_____

Address_____

City or Town_____State_____

Please Check One: ☐ Producer ☐ Sanitarian ☐ Student

Two-timing cow

The many readers of your great magazine may be interested in an unusual set of twins dropped at our farm recently.

A second-calf Holstein heifer in our herd dropped a Holstein calf about 7:30 the evening of February 22. When we returned to the barn again, about an hour later, we found she had given birth to another calf. This a jet black Angus-Holstein cross.

Dr. E. D. Boice, our veterinarian, investigated the multiple bovine birth and determined that the two calves biologically are half brother and half sister.

We recall now that at the time of conception there were two bulls available to the herd, one a Holstein and one an Angus.

So we find that our Holstein was not only prolific but promiscuous as well.

Nebraska HARLAN HENZLER

". . . my good fortune"

I wish to take this opportunity to express my good fortune for being able to subscribe to such a generally informative magazine as yours in regard to dairying.

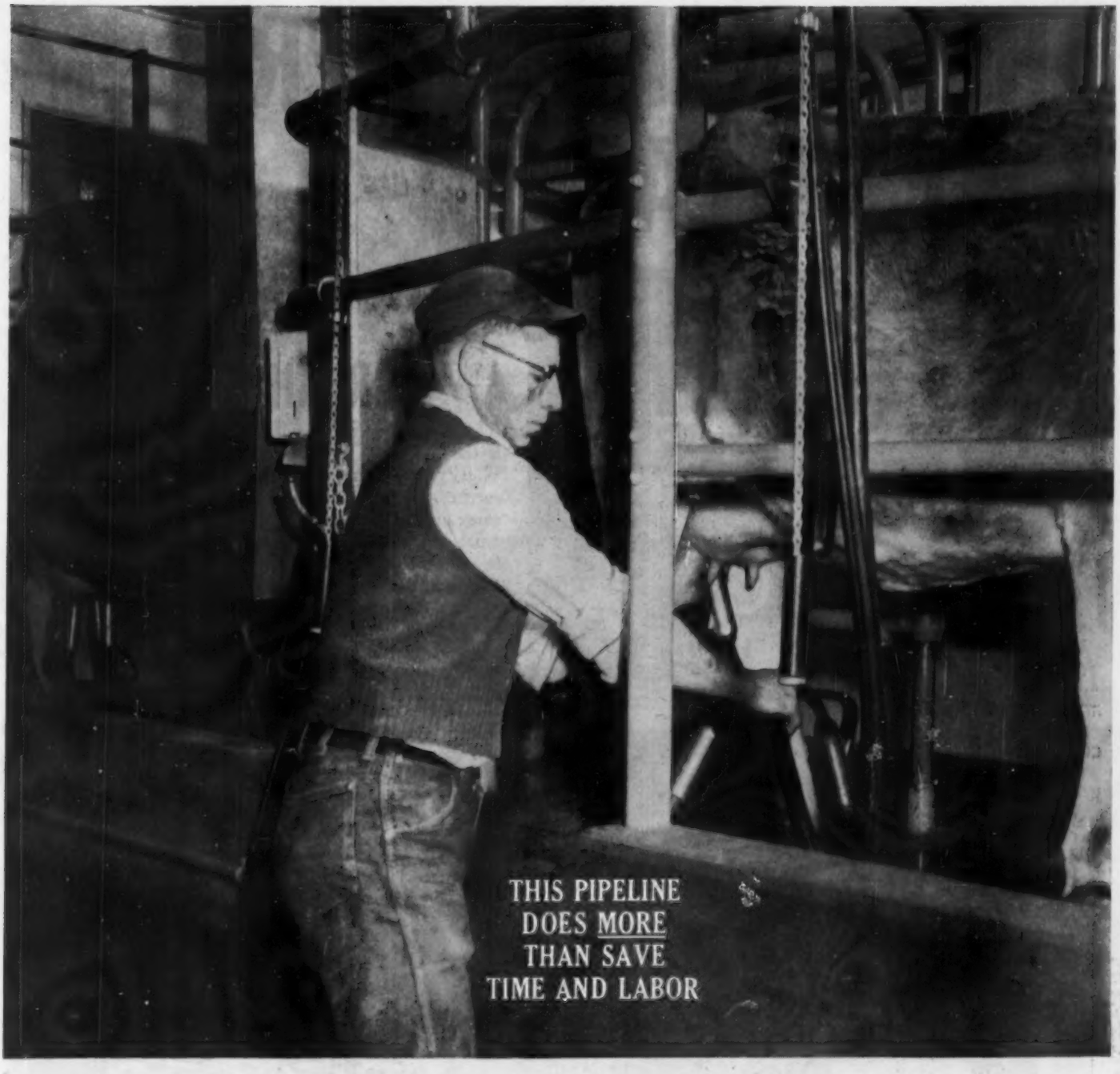
Wisconsin MARTIN BRODHAGEN

Our pick-up man

My wife, son, and myself have a small dairy farm just east of Canon City, Colo.

Naturally, we take Hoard's Dairyman and enjoy it very much as well as receive valuable information from it. We are milking 60 cows at present and sell our milk to Meadow Gold at Pueblo, Colo. We have a pick-up man who we

(Continued on page 471)



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with a De Laval Combine Milker—and it's priced no higher than other pipelines!

Why only De Laval milks fast, clean and gentle

De Laval uses narrow-bore liners that fit snug, get milk out with a gentle massaging action.

Our magnetic pulsation gives you absolutely uniform milking. No variation no matter who milks.

De Laval's rotary vacuum pump cuts vacuum drop-offs that cause slow, erratic milking.

A De Laval double 2 side-opening parlor installation costs only $1.40 per milking . . .

All pipeline milkers save time and labor, but only De Laval gives you fast, clean, gentle milking.

You need fast, clean milking for top production. When cows "let down" milk you must get it fast . . . before udder muscles tire and stop the flow. The milk you *don't* get is lost forever – and when you lose milk twice a day you lose money!

You need gentle milking to keep cows healthy. Rough milking can make teats hard and sore . . . cause congestion in teat canals and lead to udder troubles. But De Laval milking is remarkably gentle on sensitive teats and udder tissues. This keeps production and herd health up, mastitis down!

Only De Laval milks this better way because only De Laval has *narrow-bore liners, absolutely uniform pulsation and rapid-recovery vacuum.*

A double 2 side-opening parlor installation costs only $1.40 per milking after 10% down. Take 48 months to pay. Price includes installation, stalls and all equipment for milking and "Turbulent Action" Automatic Washing. With this system one man can milk 35 cows an hour. See your De Laval Dealer for your parlor or around-the-barn system. The De Laval Separator Co., Poughkeepsie, N. Y.; 5724 N. Pulaski, Chicago 46, Ill.; 201 E. Millbrae Ave., Millbrae, Cal.

10% down, up to 4 years to pay.

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THEY WORK HARDER SO YOU CAN TAKE IT EASIER!

THRIFTY CORVAIR 95's Just wheel out the produce . . . let livestock walk the plank themselves. This work-saving, time-saving Rampside model is the best news for farmers since the automatic milker! While you're taking it easy, Corvair 95's are working hard, earning more and requiring less maintenance to boot! They'll carry up to 1,900 pounds on a 95-inch wheelbase and are as much at home trailblazing over rough and rugged backroads as they are sailing along on the highway. You can thank 4-wheel independent suspension for that. The one-piece body frame is made to order for off-the-road punishment. Plenty of see-space through the wide windshield. A roomy, comfortable cab. A thrifty air-cooled rear engine that never uses water or antifreeze. Any way you look at them, these Corvair 95's spell economy and long life.

WORK-PROVED CHEVROLETS When it comes time to pass out blue ribbons for champion trucks, Chevy is a shoo-in. They're ideal for any job around the farm. Hauling formula feed, perishables or livestock, makes no difference what, Chevrolet's Independent Front Suspension makes every ride easier—*for* the driver and *on* the load. Easier on the truck, too. Cuts down tire abuse and needless wear and tear on the sheet metal. Put a Chevy truck to work on your farm (pickup, stake, whatever you need) and see if it isn't all we say *and more!* . . . Chevrolet Division of General Motors, Detroit 2, Mich.

CHEVY IFS TRUCKS

INDEPENDENT FRONT SUSPENSION

(Continued from page 468)

think is tops. He is pleasant and accommodating, and always has an answer for everything.

Here is a little ditty I wrote and enclosed in a box of candy my wife made for his Christmas:

We have a pick-up man by the name of McGee.
Has a smiling face that's a pleasure to see.
He comes driving in with the greatest of ease,
Then will back over tractor, truck, or trees.

He says he's Irish, but I say he's Scotch;
When he reads that stick he'll split every notch.
He'll heat up the stick and put it in place,
Then wait for the milk to settle its pace.

He'll pull out the stick, and read, with a look sublime.
But he ain't fooling me, for he can't read a line.
He'll go to the chart, and hunt for the place;
Then put down some figures that are sure a disgrace.

When the weather is good and the skies are all clear
He'll never take a test, you've nothing to fear.
But when the weather is wet and the cows are all dirt,
He'll take one then, you can just bet your shirt.

When we're late he comes early just as sure as fate,
And has to sit around and patiently wait;
But when we're early, he's late, comes rushing in,
With a disposition as ugly as home-made sin.

He brings us our checks, some jokes, and the news,
So you can see "Old Chuck" is good for the blues;
Now this is a lot of baloney, and believe it or not,
Merry Christmas, "Old Chuck," we like you a lot.

Colorado MERLE WILSON

Nine calves in three years

Last year I sent you a picture of our quadruplet calves which you published in your May 10, 1960 issue. This year the same cow gave birth to a healthy set of triplet calves on January 6. They averaged 66 pounds each. The cow and calves are all doing fine as well as the four calves she had last year.

The cow is now a 5-year-old and has given birth to, first, a healthy set of twins, one bull and one heifer. Then, at her next calving, she gave birth to the healthy set of quads, which you published last year. And this, her third calving, she had triplets, two bulls and one heifer (pictured here).

This brings her total to nine calves in three years. I am curious to find out if this is a record for number of calves over three years.

Minnesota DENNIS LAMPRECHT

Enjoy articles

Enclosed please find check of $3 for our renewal for 5 years.

We've enjoyed several of your late articles tremendously, especially the one in the Christmas issue and your cover, "A gift for David."

Your recent covers are also excellent — the National breed winners and exhibitors.

Outside of our own breed magazine, no other has so much interest.

New York FRED BOVA

Fox gets you out of the field an hour earlier each day

Here's why:

Special Fox transmission gives two bonus features—lever selection of cutting lengths . . . and seat controlled forward-neutral-reverse feed action.

Sharpen Fox knives in the field . . . in 3 minutes or less . . . individual knives can be replaced, adjusted . . . without removing entire set.

One extra hour per day can mean a lot during harvest season . . . time enough to cut an extra 60 tons of forage . . . to do those extra evening chores . . . or beat that rainstorm building up.

Figure for yourself exactly how much time a Fox can save you by adding up, on the blanks at the right, the non-productive time your present forage harvester cost you last season.

How many minutes did you spend last season that you might have saved with a Fox on—

Attachment hook-up.....——
Fox corn harvester, mower bar and windrow pick-up attach easily, quickly . . . in less than 10 minutes. No tools needed.

Dislodging choked material.....——
Fox forward-neutral-reverse feed action is controlled from the tractor seat.

Replacing damaged parts.....——
Safety shear pins on Fox cutting cylinder, apron and upper feed drive protect against major damage from stone, metal objects.

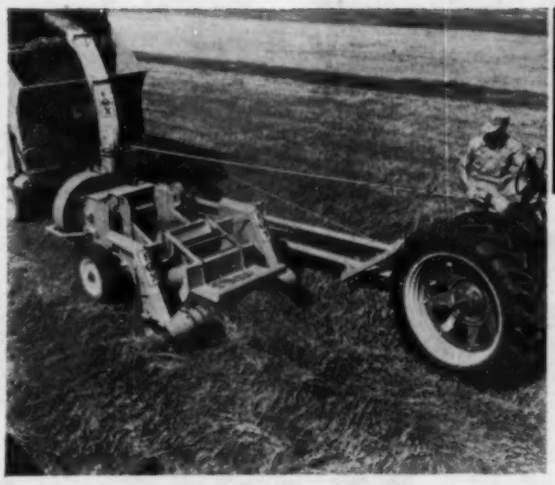
Sharpening knives.....——
Fox knives can be sharpened, adjusted right in the field in less than 3 minutes.

Adjusting length of forage cut....——
Handy Fox lever movement selects the cut you desire. No greasy gears to change or clumsy chains to unhook.

Plus Fox crop-hogging capacity. Up to 60 tons per hour with the Super-6, the Custom-7—even more with the Fox Self-Propelled.

Now figure up how much time you'd have saved last year with a Fox. Then hurry to your nearby Fox dealer for more details . . . or clip and mail the coupon below today.

745



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I could use that extra hour a day. So send me your free booklet "23 Reasons Why Fox is the Best Buy" and detailed information of the ☐ Fox Self-Propelled or Fox Pull-Type harvesters: ☐ heavy-duty Custom-7 ☐ low priced Super-6 ☐ Crop Blowers ☐ Forage Boxes

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Fox forage handling equipment

A work-saving team of Fox forage box and blower makes forage handling so easy even your 10 year old can handle the job.

Forage Box and Bunk Feeder

Here's an all-purpose box that is tough and durable. Grain tight with up to 518 cubic foot capacity. Unloads six tons of forage in only four minutes and the tractor P.T.O. does all the work. Enclosed transmission, self-aligning bearings and variable speed control are just a few of the extras. Purchase the unit complete or as a do-it-yourself kit with plans and diagrams.

Short Hopper Auger Blower

Perfect companion to the Fox bunk feeder. Positive auger feed speeds up grain handling. Rotating blower band delivers at any angle. Simple, sturdy design insures many years of service.

All-Crop Long Hopper Blower

Wide 10-foot hopper delivers more than a ton of corn silage per minute. Performs with other forage crops equally well. Perfect balance and streamlined design make quick work of storing, transporting and setting up.

More partners for the New Generation of Power:

NEW 2-Row Units for John Deere Forage Harvesters CUT FIELD TRAVEL IN HALF

Now you can handle row crops with half the number of trips over the field, thanks to the new 2-row units for the low-cost PTO-driven John Deere No. 6 Forage Harvester and the heavy-duty, PTO- or engine-driven 12 Forage Harvester. With either of these rugged machines you'll fill a wagon in minutes and leave fields clean. The wide gathering points get right down and hug the ground picking up those hard-to-get down-and-tangled stalks.

The No. 6 and 12 Forage Harvesters are also available with 1-row units. The No. 6 comes with either a low-cost or a heavy-duty 1-row unit . . . the 12 with a heavy-duty unit.

All-Purpose Hay Choppers

You'll chop standing and windrowed hay with a John Deere Forage Harvester, too. The economical No. 6 matches capacity to your acreage with a 4-, 5-, or 6-foot mower-bar unit. The "big and beefy" 12 eats up acres with a 6- or 7-foot mower bar. Windrow pickups for cured and semi-cured hay are available for both the No. 6 and 12.

Ask your dealer for all the facts and figures on John Deere Forage Harvesters. Find out all about the liberal terms of the Credit Plan, too. Write the address below for free literature.

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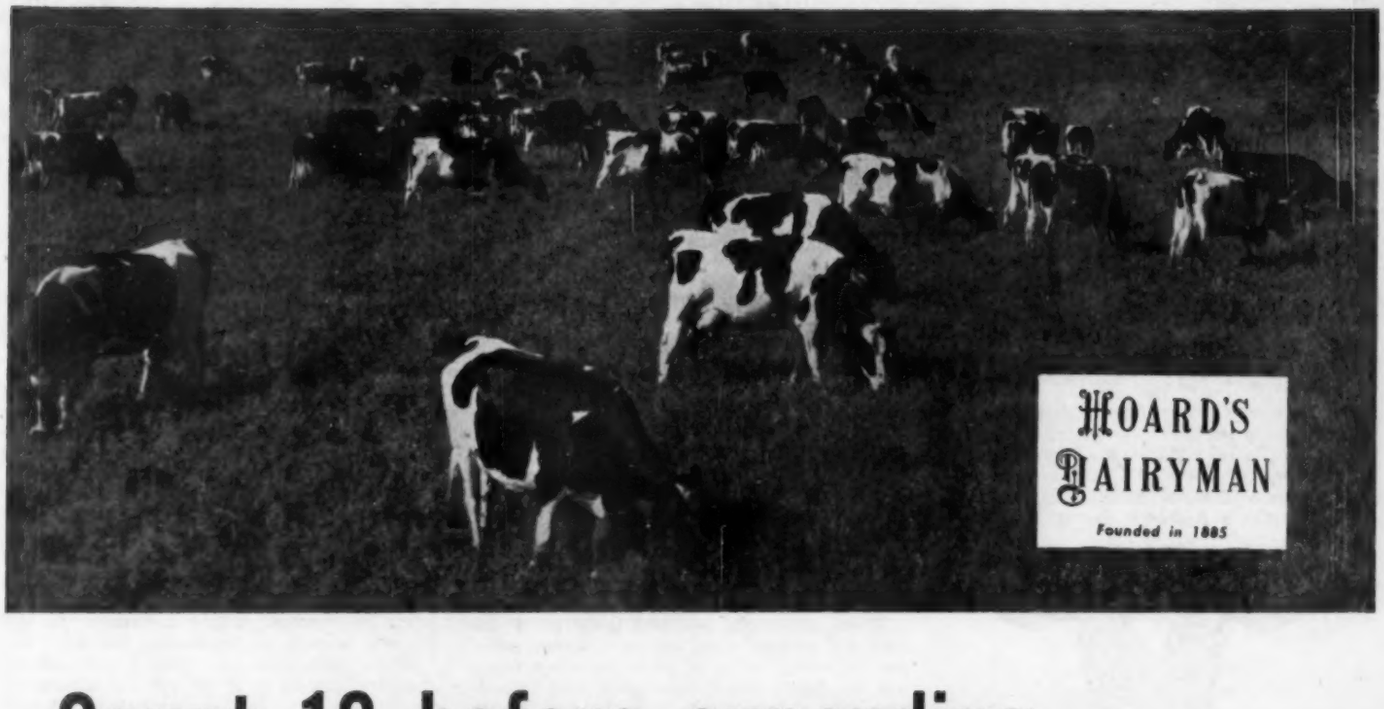
JOHN DEERE design, dependability, and dealers **MAKE THE DIFFERENCE**



Count 10 before expanding

Growth is in order to keep pace with the times; but a long-range expansion plan is far less risky than a sudden leap to a big-herd size, say Michigan dairy economists.

by Norman Reeder

THE road to big-herd dairy farming is steep and rocky with many a hazard that can bring disaster. Thus warns two Michigan State University specialists in dairy farm economics. Dr. Dick Wheeler points out 10 pitfalls that every dairyman should be aware of before he sets out to double, triple, or quadruple the size of his herd. They are:

1. **Belief that you will have to expand to stay in business.** Actually there are five dairy herds of 30 cows or less in Michigan to every one of larger size. Economists estimate that expansion may offer the prospect of higher earnings for only one or two out of every five dairymen, but it is not the way out for all.

2. **Following the crowd.** Nobody has yet been able to write a prescription for sure-fire success that will fit all farms or farmers. What neighbors and brothers-in-law do with apparent or real success may not work for you. As the manager of your own business, it is up to you to study the situation and make up your own mind.

3. **Worship of volume for volume's sake.** The word volume has come to have a romantic appeal that soon wears off in actual practice. When things go wrong, big operations suffer most. It usually takes higher gross income per man in a big operation to match net income per man with moderate size dairy operations.

4. **Copying practices blindly.** Land, location, available capital, management ability, and any number of other factors enter into making a practice work. Again, look before you leap, is the advice of Wheeler.

5. **The piecemeal approach.** The real danger here is lack of long-range planning. A big new barn without the cows or the feed storage for a big herd won't add to profits.

6. **Multiplying profits per cow.** This is the quick and easy way to calculate profits from expansion, but it just isn't reliable. You need more than the back of an envelope to figure the entire combination of income and expense to be expected with a larger herd.

7. **Over-simplifying the management picture.** With a big herd you are going to have to manage more than your own time and effort. You will have to manage the work of others, too, and co-ordinate it all. You won't be able to keep everything in your head, so you will need better records, and have to spend more time at record keeping. And it is a fatal mistake to overlook this point.

8. **Over-estimating receipts.** It is the usual thing to lose some production per cow when the herd is suddenly expanded. Sometimes the fall off is drastic. There is the price outlook to consider, too.

9. **Under-estimating expenses.** This comes as naturally as taking a too rosy view of probable receipts, says Wheeler. Extra services and bigger emergencies go with large operations. Figure a good margin for safety when you total the probable expenses.

10. **Failure to recover investments.** Remember that wear and tear and obsolesence begin to eat away at your investment the day you complete a new building or put new equipment to work. If you fail to get these paid for before they have to be replaced, you're sunk. If depreciation takes 10 years, better figure to have the investment paid up in no more than seven years.

Three critical points . . .

Dr. Lauren H. (Hi) Brown raises the warning flag at three main critical points in dairy herd expansion:

Debt management

Keeping the business balanced

Maintaining production

As to debt, a study of records of Michigan farm account keepers shows that it is costing from $90,000 to $120,000 in new investments to jump herd size from 35 or 40 cows to 100 or 120 cows. And few herds that leave the 35- to 40-cow ranks seem able to find a stopping place short of 100 cows. "There are very few permanent 60-cow herds in Michigan," he said.

Brown listed the main investments as:

Lounging area (50 to 60 square feet)	$80 a cow
Concrete yard area (120 to 150 square feet)	35 a cow
Silos (6 to 10 tons per cow)	70 a cow
Hay storage-feeder	40 a cow
Auger bunk	15 a cow
Silo unloader	15 a cow
Parlor and milking facilities	200 a cow
Extra cows	350 each
Extra land (4 acres per cow)	$800 to 1,200 a cow
Total approximately	$1,400 to $2,000 a cow

There is plenty of credit available from suppliers of buildings and equipment for dairy herd expansion, but it is mostly short term credit, Brown points out. You can run up a staggering debt without having anyone bother you for your net worth statement. But you better draw up that statement and base your borrowing plans on just what it tells you about your ability to pay off debts after deducting your living expenses, he said.

The man who gets all set up for 100 cows and then runs out of credit before he can put in the extra cows or buy the land to raise feed for them is in a nightmarish situation. But, Brown says it is actually happening.

Grow step by step . . .

This economist says the way to grow in the dairy business gracefully and profitably is to start with a long-range plan with a lot of study; then decide on a succession of steps that will keep your business in balance until the complete plan is worked out.

It is a hardship to keep milking in the old stanchion barn when you have a beautiful milking parlor drawn up on paper, but this may be far wiser than building the parlor at the expense of needed cows, housing, paved yard, extra land, or silos. Brown suggests as a first step in expansion that you start growing out a bunch of heifers. *(Turn to page 484)*

Farm Flashes . . . .

Seasonal reminders and research notes for the dairyman

FACE FLY CONTROL POSSIBLE

Since first found in New York in 1953, the face fly has become a troublesome cattle pest in nearly all areas east of the Mississippi River and north of Tennessee and South Carolina. Reports during 1960 from Iowa, Missouri, Connecticut, Maryland, Tennessee, and North Carolina, show it is still spreading.

Research conducted at the U.S. Department of Agriculture's Research Center has shown

that near-perfect control has been achieved in the laboratory by adding a small amount of some insecticides to dairy cattle feed. Certain of these organic phosphorus insecticides pass through cattle, largely undigested, and make their manure toxic to face fly larvae. These larvae develop **only** in fresh manure.

Similar studies indicate this method may also aid in controlling the horn fly, stable fly, and house fly breeding in manure.

Relatively few organic phosphorus insecticides have been screened for this type of control. More research is needed to learn which chemicals are most effective, safest to use, and least expensive. Thus far, no insecticides have been approved by the government for this use.

The scientists believe that when these chemicals are found, minute quantities may be mixed into salt licks for most efficient control of the face fly.

CREEP FEEDING LAMBS PAYS

In two years of experimental work at the University of Minnesota, creep-fed lambs gained almost twice as fast as lambs that got no grain. While grain fed to both ewes and lambs resulted in highest lamb gains, the extra gains did not pay for the grain fed to the ewes.

The creep-fed lambs in the tests gained an average of .65 pound a day at a cost of 11.7 cents for each pound of gain. Lambs getting no grain and whose mothers got only roughage, gained only .33 pound a day at a cost of 14.4 cents a pound of gain.

Creep-fed lambs whose mothers also got grain gained the most at .71 pound a day, but the cost was 12.9 cents a pound of gain. A fourth group of lambs not creep-fed, but whose mothers received grain, gained .46 pound a day at a cost of 14.1 cents per pound of gain.

Based on these tests, it is recommended that the milking ewe be fed good-quality hay and at least one pound of grain per ewe daily for the first two weeks after lambing. As soon as the lambs will eat grain (10 to 14 days), set up a creep feeder in a warm spot in the barn and feed the lambs grain and leafy legume hay. Grain for the lambs should be cracked and the feeders kept clean to make sure that the lambs will eat their fill.

While grain feeding may be discontinued for the ewes as soon as the lambs are eating well out of the creep feeder, the ewes should continue to receive high-quality hay.

NEW TEST FOR LIGNIN IN FORAGE

A team of Washington State University scientists is perfecting a new forage test for lignin. It involves converting the lignin in hay, grass, or silage to a water-soluble derivative, then measuring the amount through the use of ultra-violet light.

When perfected, the test may pave the way for general adoption of a lignin index for the energy value of feed. Dairymen could use the lignin index to balance feed rations and protect their herds from hidden hunger and the resulting slump in milk production.

Scientists have found previously that energy value of a forage varies inversely with the lignin content.

The test involves placing a powder-fine forage sample in a chemical solution which is sealed in a fragile glass ampule, sealed, in turn, in a water-filled, gastight brass cartridge. The lignin in the forage is changed to water-soluble derivative in 3 hours of heating at about 400 degrees. The amount of lignin in the sample is then measured through use of ultra-violet light.

While the new test was developed by members of the agricultural chemistry staff, animal and dairy scientists and agronomists are cooperating in the research.

WHEN CHOOSING SEED OATS

An Iowa plant pathologist suggests keeping the frequency of damage from different oat diseases in proper perspective when selecting seed oats.

In Iowa, for example, crown rust is serious on the average of about one year in three. On the other hand, yellow dwarf has been serious only about 1 year in 10. Therefore, the odds favor choosing varieties that are rust-resistant or early enough to escape rust, such as Minhafer, Bonham, Cherokee, Burnett, Clintland 60, or Goodfield.

Besides selecting from among rust-resistant varieties, plan early to get a good stand on a fertile seedbed. This lessens damage if yellow dwarf or rust does strike.

It is a good practice to hedge further against disease in adverse weather by planting two or three different varieties of oats.

Spraying oat fields early in the spring to kill aphids might be effective in controlling yellow dwarf, but the costs probably would make this uneconomical. Should yellow dwarf become serious, clipping the oats will stop them from competing further with the forage seeding .

Don't plow under oats if they are seeded with forage legumes, since yellow dwarf does not attack legume crops. Even if the oat crop is a total loss, the forage seeding should be successful if other conditions favor it.

Milking cows without keeping records of production is like driving a car while blindfolded; you're free to steer but you can't know which way to turn.

VACCINATION PREVENTS SWINE ERYSIPELAS

Swine erysipelas, one of the most costly diseases affecting the hog industry, can be prevented by vaccination. It may cause sudden death or appear as a chronic infection in a herd. Greatest losses have resulted from the chronic forms, which cause stunting, decreased growth rate, and a drop in feed efficiency.

In addition to swine, lambs, calves, foals, and turkey flocks can be infected. It is spread by pigeons and other fowl.

Since it is a bacterial disease that can live in the soil, once the infection occurs on a piece of land, there is no choice but to vaccinate to prevent future outbreaks. As yet there is no way of disinfecting the soil.

While antibiotics may help a sick animal, the best method is to prevent the disease by vaccination. Pigs can be vaccinated at 6 to 8 weeks of age and will be immune for about 6 to 8 months. A Michigan veterinarian recommends that breeding stock be revaccinated periodically.

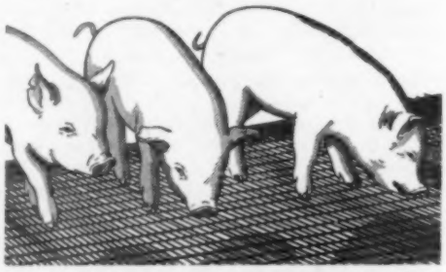
Acute outbreaks closely resemble cholera. Infected pigs have high temperatures and frequently die. With the chronic form, animals may survive unaided, although the animal usually has swollen joints and sore, lame legs. Still another form causes growths on the heart valves, which result in sudden death.

Still other forms result in loss of tails or the loss of the margin of the ears. Some cases show no lesions, but the animals remain runts and are slow gainers.

RAISE PIGS ON STEEL MESH?

It is not uncommon to see chickens raised on wire or calves raised on steel mesh; now it may become common to find pigs being grown out on steel mesh.

A series of 14 tests conducted at the University of Illinois showed that pigs on steel



mesh made 19.5 per cent faster gains than those on concrete floors.

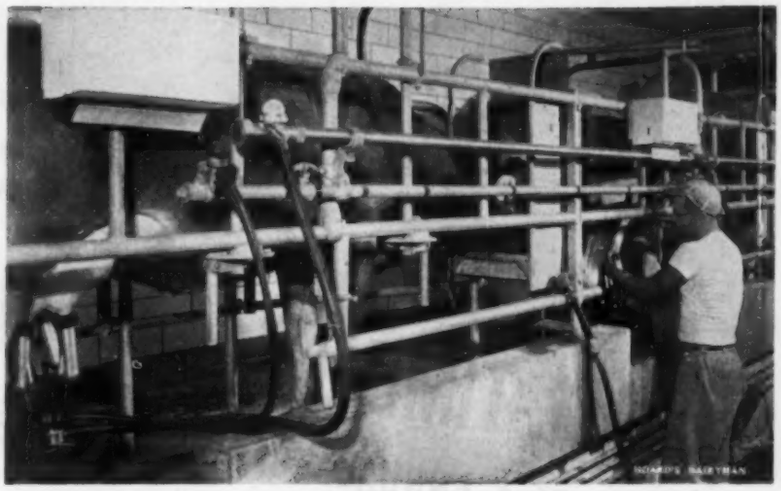
The test involved 728 pigs weaned at 2 to 3 weeks of age. All pigs, regardless of flooring, received the same rations and experimental treatment. The amount of feed required per pound of gain varied, and neither type of flooring affected it consistently.

Pigs on a steel-mesh floor showed no adverse effects. Their feet and legs, in particular, showed no harmful effect. They also stayed much cleaner than those on concrete.

They were provided a wooden overlay as a sleeping area and they used it, except in hot weather when they preferred cooler mesh.

Workers cleaned the concreete floors daily. Cleaning of the concrete under the steel mesh varied from daily in hot weather to monthly during the winter.

Plan it right... build it right... run it right



Wise choice of materials and strict attention to details and quality of construction are basic for a permanent, practical, and usable milking plant.

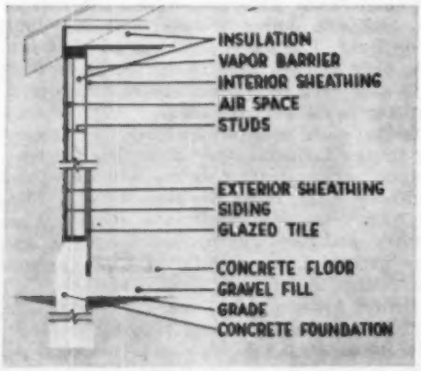
by Ted Brevik

MOST people associate a milking plant (often called a milking parlor set-up) with a loose-housing system, but there is a growing interest in using a milking plant with stall-barn operations. With large dairy herds or where physical handicaps exist, milking parlor milking is being planned to reduce the effort of milking.

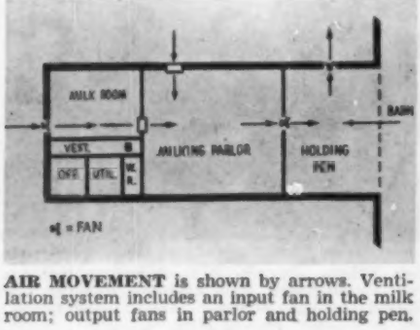
The cost of installing and the problems of managing a pipeline milker in a large, stall barn has also created some interest in the possibility of milking parlor milking. Even with a pipeline, the stooping and bending still are present, and can be quite a problem in larger set-ups.

A milking plant is a building designed specifically for the purpose of performing the milking operation in a more convenient, an easier, and a more efficient manner then we are used to in a stall barn. It also serves as a suitable place for handling and storing milk until it is picked up by the milk hauler.

The author is an extension agricultural engineer, University of Wisconsin.



PROPER CONSTRUCTION includes a good foundation, insulation, and vapor barrier. Floor should be hard, durable, and easy to clean.



AIR MOVEMENT is shown by arrows. Ventilation system includes an input fan in the milk room; output fans in parlor and holding pen.

Since the milking plant is a tool of production that is used for producing a high-quality human food, and is used twice each day, it is extremely important that:

1. A good deal of time is spent in planning it.
2. A considerable amount of time is spent in supervising construction details.
3. The operator learns how to use the plant to his best advantage.

Few machines on the farm will be used as intensively as a farm milking plant.

The milking plant must be built in such a way and of materials that will withstand a variety of severe treatments, and yet retain a nearly new condition for many years.

Before considering materials and details of construction, some basic considerations of the purpose of a milking plant are important.

1. It must provide the kind of environment that will protect the high quality of milk that is handled and stored there.
2. It must be easy to keep clean and sanitary.
3. It must be built in such a way and of materials that are long lasting.
4. It must work easily; all equipment and moving parts must continue to work easily for many years.

In many ways, the details of construction and the materials of construction are more important than the plan itself. There are many parts of the building that need attention; a few of the more important are discussed here.

Construct permanent floors . . .

Floors undoubtedly receive more punishment than any other part of the milking plant. They are subject to abrasive action by cows' hoofs, sand, grit, by the action of milk, cleaning compounds, and repeated wetting and drying due to washing.

Even though they are receiving this severe treatment, less care is taken during construction to insure quality of construction than most other parts of the structure. Actually, considerable knowledge and skill are required to insure the best performance of a concrete floor. A porous, scaling floor soon becomes sour, difficult to clean, and seldom dries out.

Concrete is difficult, if not impossible to repair or remodel once it cracks or becomes badly pitted.

As far as details of construction in a milking parlor or a milk room are concerned, it would be a good idea to keep in mind that:

1. The floor should rest on well-tamped, well-drained granular fill, such as coarse gravel six inches thick. Do not use cinders.
2. The floor and the foundation wall should be placed separately so each can move independently of the other with temperature changes.
3. Floor should slope ¼ inch a foot toward floor drains.
4. Locate floor drains in milk room near outlet of bulk tank and below wash tanks so cleaning water will not run over extensive floor areas.
5. The floor finish should be as smooth as possible, consistent with safety. Aluminum oxide, carborundum chips, or emery chips can be applied at the rate of one-half pound to one pound per square foot when finishing a concrete floor, to give a slip-resistant surface. The average size of this chip should be one-eighth inch in diameter.
6. Perimeter insulation will help reduce heat loss and ice accumulation at the floor wall junction. Be sure the insulation you see is designed for this purpose.

Easy-to-clean walls . . .

Keeping walls clean in the milking room is a real problem if the finishing material is hard to wash down. The kind of material used here, particularly on the lower part of the wall, should have a smooth surface that can stand repeated wetting and drying. A ceramic or glazed tile is a very satisfactory material for this purpose. The main problem they offer is in the mortar joints. There are some paints and polyester plastic or epoxy reinforced paint-like materials on the market that look very promising.

Walls that are properly insulated will mean a milking plant that is easier to keep clean and sanitary, easier to ventilate, and also less costly to heat.

Insulation in the proper thickness and properly applied will reduce the heat loss through the wall, raise the inside surface temperature of the outside walls so they are above the dew point, and will reduce the amount of supplemental heat needed. Usually, two to three inches of a commercial blanket or batt in a frame wall will give the needed insulation.

A vapor barrier is needed to keep the insulation dry. A vapor barrier, in addition to the one that is often a part of a blanket or a batt type insulation, is good insurance against moisture penetration into the insulation and building frame. Materials such as aluminum foil and polyethylene film make good vapor barriers. For masonry walls, aluminum asphalt paint, certain types of rubber base paint, and some enamel paints increase vapor resistance of wall surfaces.

Smooth ceiling . . .

The ceiling finish must be a material that has a dense, smooth, easy-to-clean surface such as cement asbestos board, matched painted lumber, painted exterior type plywood, or painted cement plaster over metal lath. The paint used should be an interior enamel designed for areas of high moisture.

If cement asbestos board is used in areas where it could receive rather severe bumps from the cow, it should be backed solidly with one-inch lumber.

At least four inches of commercial-type batt or fill insulation or its equivalent is recommended for the ceiling. A vapor barrier is recommended between the insulation and the inside of the building. The space above the insulation should be ventilated so excess heat and moisture can move readily to the outside. About 1 square foot of ventilation opening in the attic is recommended *(Turn to page 489)*

★EXTRA!★

ALL-TIME RECORD 90,792 ENTRIES

IN 31st ANNUAL HOARD'S DAIRYMAN COW JUDGING CONTEST

★ Entries from all 50 states

★ Entries from Canada, New Zealand, Puerto Rico, Ethiopia, Israel, Southern Rhodesia

★ 1,754 high school entries from 49 states and Ethiopia

★ 1,189 4-H club entries from 46 states and Canada

★ 146 college teams from 40 states, Canada, New Zealand, and Southern Rhodesia

★ 5 perfect scores

★ First prize winners from New York, Ohio, Kansas, Washington, and Mississippi

★ 18 states represented among the winners

FROM the brief summary listed above, it is obvious that the 31st Annual Hoard's Dairyman Cow Judging Contest was the largest agricultural event of its kind ever held. New records were set in every division and, of course, the 90,792 entries were an all-time record!

This record-breaking total brings our 10-year average to 76,597, while the average for the 31 years that the contest has been held is an amazing 55,824!

As one would expect, there were many ties for the individual prizes which were broken by reasons.

W. J. Rodin, who with his wife and family live on a small farm near Spokane, Wash., came out on top in the senior division. Like Delbert Jamison, vocational agriculture teacher from Lindsborg, Kans., he had a perfect score of 500.

Rodin holds a full-time job at the Kaiser Aluminum Company and farms in his spare time. His oldest son, David, had a Guernsey calf as his 4-H project last year which was reserve grand champion, and, according to Rodin, "This aroused my interest in judging cows." He told us that he spends what leisure time he has reading about better farming methods and cattle raising.

Jamison, who was winner in the division for vocational agriculture instructors in which 1,166 participated, was raised on a general farm in Kansas, studied vocational agriculture in high school, and graduated from Kansas State University in 1954. Since then he has taught at Lindsborg and received Honorable Mention in the 1956 Hoard's Dairyman Cow Judging Contest.

With his score of 496, Charles Morrow, Columbus, Ohio, won undisputed third prize in the senior division, although there were nine tied for fourth prize with scores of 494. Based on reasons, the respective winners are listed below, along with those in the Honorable Mention group:

Senior Winners

1. W. J. Rodin; Deer Park, Wash.
2. Delbert E. Jamison; Lindsborg, Kans.
3. Charles R. Morrow; Columbus, Ohio
4. Keith Germain; Greenwich, N. Y.
5. Danny Haile; Hico, Texas
6. H. Zimmerman; Arkansas State College
7. John Marbot; Buskirk, N. Y.
8. David Lohnes; Hoosick Falls, N. Y.
9. Louis Schilling; Evans City, Pa.
10. Charles Seely; Drums, Pa.
11. Darold Gasner; Medford, Minn.
12. Dick Schrader; Columbia City, Ind.

Honorable Mention:

Douglas Phelps; Pelican, La.
Joe Mersch; Beaver Dam, Wis.
Harland Kennison; Winthrop, Maine
B. A. Stevens, Jr., Dallas, Texas
Archie McDaniel; Carnation, Wash.
Marty Nelson; University of Wisconsin
Robert A. Wing; Marshall, Wis.
Thomas Horner; Cortland, N. Y.
Richard E. Poyer; Georgetown, N. Y.
Lenore Yelverton; Columbus, Miss.

There was a two-way tie for second prize in the vocational agricultural division between Robert Wing, Marshall, Wis., and Richard Poyer, Georgetown, N.Y. Wing had the highest reasons' score and was the eventual winner. A 1958 graduate of Wisconsin State College where he took judging courses, he has taught vocational agriculture at Marshall for the past three years during which time he has coached dairy judging teams. While in high school, he was a member of the dairy judging team.

Poyer graduated from Cornell University last year where he took a course in dairy cattle judging. He now works with a 4-H club as well as his FFA group and devotes considerable time to dairy cattle judging.

Marvin Hanson, Oakland, Nebr., won fourth prize. The complete list of winners follows:

Vo-Ag. Winners

1. Delbert E. Jamison; Lindsborg, Kans.
2. Robert A. Wing; Marshall, Wis.
3. Richard E. Poyer; Georgetown, N. Y.
4. Marvin A. Hanson; Oakland, Nebr.

Honorable Mention:

Robert E. Brown; De Kalb, Ill.
Ralph Twenhafel; Waverly, Ill.
James Rose; Cherry Valley, N. Y.
Clayton Oslund; Hallock, Minn.
Carroll M. Eaddy; Hemingway, S. C.
J. L. Maynard; Choctaw, Okla.
Donald E. Whitt; Grapevine, Texas
John Valiga; Kaukauna, Wis.
Albert R. Yanke; Texhoma, Okla.
Frank E. Salisbury III; Wickford, R. I.

There was a three-way tie for first prize in the junior division (all with perfect scores). Highest reasons' score was made by Thomas Wayne Wooten, a 14-year-old high school freshman from Riverton, Kans. The son of Mr. and Mrs. James Wooten, who live on a small farm, Thomas is president of his freshman class and participates in football, basketball, and track. His vocational agriculture instructor is Gilbert Arnold.

Second prize winner was David Hill, a senior in the Columbia City Joint High School, Indiana, whose instructors are William Wilder and Leon Alter. David has been active in FFA all four years with projects in dairy, swine, poultry, and corn. His parents operate a 200-acre general farm, and David hopes to continue farming following graduation.

Henry Armstrong, 17-year-old son of Mr. and Mrs. James Armstrong, Skaneateles, N.Y., won third prize. A high school junior, he

FAMILY WINNER
Mr. and Mrs. Leonard Henschen and daughter, Louise
St. Mary's, Ohio

WINNING HIGH SCHOOL: Madrid-Waddington High School, Madrid, N.Y. Members include: Arnold Richards, Gary and Wilfred Bush, Neil Planty, Bruce Sayre, Paul Cloutier, Richard McMillen, Douglas Matthie, John Ashley, Paul Fobare, Ronald Hurlbut, James McDonald, Alan Myers, and Patrick Ruddy. Gerald W. Crump, the instructor, is standing second from the left.

SENIOR WINNER
W. J. Rodin
Deer Park, Wash.

JUNIOR WINNER
Thomas Wooten
Riverton, Kans.

VO-AG WINNER
Delbert E. Jamison
Lindsborg, Kans.

helps his father and brother care for 70 head of registered Ayrshires. Harold Miller is his vocational agriculture instructor.

Following are the prize winners in the junior division:

Junior Winners

1. Thomas Wooten; Riverton, Kans.
2. Dave Hill; Columbia City, Ind.
3. Henry Armstrong; Skaneateles, N. Y.
4. Bill Chipps; Beverly, Ohio
5. Edwin Gould; Marshfield, Vt.
6. Don Lee; Westby, Wis.
7. Arlyn Jorstad; Westby, Wis.
8. Joanna Blood; Palouse, Wash.
9. Clyde Chism; Pelican, La.
10. Jim Goard; Hayesville, Ohio
11. Jim Geiger; Columbia, Ind.
12. Larry Maurer; Forrest, Ill.

Honorable Mention:

Clyde Christie; Collinsville, Okla.
Melvern Smith; Choctaw, Okla.
Jerry Lundy; Choctaw, Okla.
Ron Carey; Lake Stevens, Wash.
Dale Williams; Barneveld, Wis.
Larry Gilbert; Osage, Iowa
Jim Brandl; Clinton, Wis.
Jim Grenawalt; Clinton, Wis.
Don Stalsberg; Westby, Wis.
Frank Van Note; Freehold, N. J.

For the first time in the history of the contest, there was a tie for first place in the family division. When the reasons' scores were tabulated, however, Mr. and Mrs. Leonard Henschen and their daughter, Louise, of Henschen Holstein Farm, St. Mary's, Ohio, edged Mr. Alvis Shore and his two sons, Boonville, N. C. The Henschens, who have lived on a dairy farm all their lives, have participated in several previous contests and told us that it is really a family project at their house.

Mr. Shore was encouraged to enter by his two sons, Keith and David, who studied vocational agriculture under J. R. Walker, who has taught at the Boonville school for 32 years. Mr. Shore also was one of Walker's students.

The P. A. Yelverton family, Columbus, Miss., placed third, while the family of Ellen Bogert, Sherman, N. Y., was fourth.

Following are the prize winners in the family division:

Family Winners

1. Leonard Henschen Family; St. Mary's, Ohio
2. Alvis Shore Family; Boonville, N. C.
3. P. A. Yelverton Family; Columbus, Miss.
4. Ellen Bogert Family; Sherman, N. Y.

Honorable Mention:

Gerrit Meenderinck Family; Lynden, Wash.
Howard Woestman Family; Filley, Nebr.
Clara Willard Family; Boonville, N. C.
Kent T. Mattson Family; Carnation, Wash.
Carroll Moore Family; Brooksville, Miss.
Hank Gutzman, Family; Receda, Calif.
Erhardt Bauman Family; Union, Ill.
Charles Schumacher Family; Thousand Oaks, Calif.
Cecil Draper Family; Ashland, Ohio
Ralph Muller Family; Washington, Ill.

Out of the 1,754 high school entries from 49 states and Ethiopia, the Madrid-Waddington Central School, Madrid, N. Y., won first prize with an average score of 466. Active in local and state dairy cattle judging contests since the FFA chapter was chartered in 1931, Madrid placed third in the Hoard's Dairyman contest in 1956 and second in 1959. Gerald Crump has been vocational agriculture instructor since 1953, except for two years he spent in service when William Davies was the teacher and coach.

Just three points behind was the Cashion High School, Oklahoma, whose instructor is Richard Edsall. Lake Stevens High School, Washington, was third, after being among the Honorable Mention group last year. Instructor Thomas Straka was second prize winner in the vo-ag instructor group in 1960.

There was a two-way tie for fourth prize, so duplicate awards are being made to the Marysville High School, Washington, and the Grant Park High School, Illinois.

Following are the prize winners in the high school division:

High School Winners and Instructors' Names

1. Madrid-Waddington High School; Madrid, N. Y.; Gerald W. Crump
2. Cashion High School; Cashion, Okla.; Richard Edsall
3. Lake Stevens High School; Lake Stevens, Wash.; Thomas J. Straka
4. Marysville High School; Marysville, Wash.; Roland Hallstrom

Grant Park High School; Grant Park, Ill.; Clark N. Jenkins

Honorable Mention:

Marathon Central High School; Marathon, N. Y.; L. E. Harvey
Sibley High School; Sibley, Iowa; Francis C. Baldus
Delavan-Darien High School; Delavan, Wis.; Glen N. Holman
Loudonville High School; Loudonville, Ohio.; Jack E. Nowels
Licking High School; Licking, Mo.; Melvin Barnes
Rudolph High School; Rudolph, Wis.; Matt Kelley
Decatur High School; Decatur, Texas; F. C. Gibbs
Gaithersburg Senior High School; Gaithersburg, Md.; James L. Pope
Deerfield High School; Deerfield, Wis.; Robert Huebel
Westby High School; Westby, Wis.; Dale Nestingen

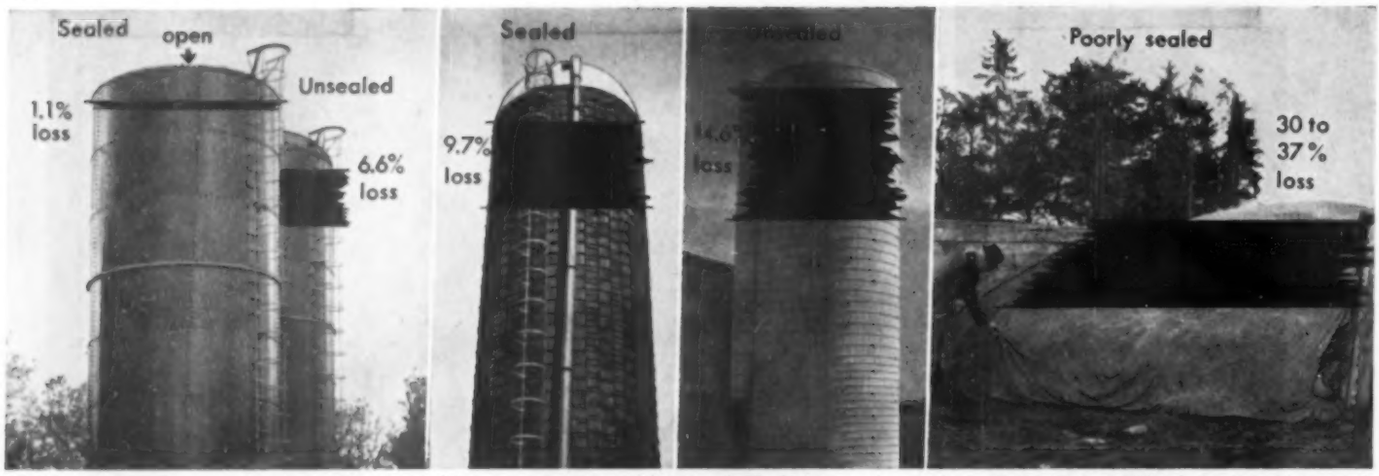
With 1,189 4-H club entries from 46 states and Canada, Cortland County, New York, had the distinction of placing two clubs in the top four. The winner was the Willowbrook Boy's 4-H Club, Cortland, led by Henry Phillips; the South Hill Dairy Club, led by Mr. and Mrs. Clarence Somers, was fourth.

The first place club, with a score of 469, has entered the Hoard's Dairyman Cow Judging Contest each year since it received its charter in 1950. It has been unusually active in a variety of activities, including showing at the Cortland County Black and White Show, New York State Fair, New York State Artificial Breeders' Cattle Show, and New York State Record Keeping Contest. Members participate in numerous school activities.

According to Mr. Phillips, the cash award will be used in support of constructing a new building at the fair grounds which will allow them to expand their dairy *(Turn to page 481)*

WINNING 4-H CLUB: Willowbrook Boys' Club, Cortland, N.Y. Seated left to right: Douglas Goodale; Donald Lash; Henry and Stephen Phillips. Standing left to right: Henry V. Phillips, leader; Robert Goodale; John Aungier; Lawrence Lash; James Goodale; and Robert Blatchley, county agent.

WINNING COLLEGE: Mississippi State University. First row left to right: John Loftin; Douglas Yelverton; Monty Montgomery; Joe Eubanks; Jacob Megehee. Second row left to right: C. B. Browning, coach; Clyde Wallace; Marion Moore; Dalton Garner; and Dan Addy. Frank Rogers not present.



SILAGE LOSSES range from a minimum of 1.1 per cent to a maximum of 37. Unless entire surface of plastic is weighted, it does little good.

Low-moisture silage looks good . . .

. . . based on tests at South Dakota State College. For best results, ensile at 30 to 40 per cent moisture and make the silo as airtight as is possible.

by Howard Voelker and Emery Bartle

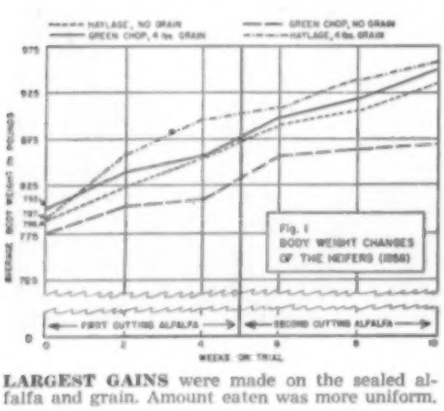
DUE to the interest that has been shown in haylage, a low-moisture silage stored at 25 to 50 per cent moisture under airtight conditions, a series of trials were set up at South Dakota State College.

The results showed that haylage compares favorably with hay, silage, and green-chopped alfalfa. It rated high in nutrient content, the cattle liked it, and storage losses were small.

Farmers using sealed storage units have had good results putting the crop up with less moisture than for regular silage. Some people have been able to make conventional upright silos airtight enough, apparently, to satisfactorily preserve low-moisture silage. However, certain precautions appear necessary.

In the first test, third cutting alfalfa was cut in the bud stage and dried in the field to 40 per cent moisture. It averaged 24 per cent crude fiber on the dry basis. Half of it was made into low-moisture silage; the other half chopped and dried with a cold air fan drier.

These roughages were fed individually to 20 cows the following winter in a change-over feeding trial. Grain was fed at the rate of 1 pound for 3 pounds milk produced. Half of the cows in each group were fed a concentrate mixture that averaged 13.9 per cent protein, containing corn, oats, soybean and linseed oil meals, wheat bran, salt, and minerals. The other half of the cows received cracked corn, 1 per cent bone meal, and 1 per cent trace mineralized salt.



LARGEST GAINS were made on the sealed alfalfa and grain. Amount eaten was more uniform.

The cows produced 2.5 pounds more milk on the complex concentrates, a significant difference. They ate 3.2 pounds more dry matter (fed free-choice) from the low-moisture silage than from the artificially dried hay. The short dried stems of hay resulted in sore mouths from the hay, which seemed to reduce the amount that the cows consumed.

The table shows that the cows gained weight on the low-moisture silage and lost weight on the hay. They averaged about the same in milk production during the 8-week periods. However, the cows on low-moisture silage dropped 1.2 pounds milk daily per cow during the periods compared to a drop of 2.2 pounds on the hay.

	Alfalfa sealed	Alfalfa hay
Number of cows (fed individually)	10	10
Pounds per cow per day:		
Alfalfa fed	40.2	21.6
Dry matter, consumed	23.1	19.9
Weight change per cow	+17	—10
Milk produced (4% fat)	37.7	37.3

In a second winter trial, 21 cows were again fed individually for three periods so that each cow received sealed alfalfa silage, sealed oat forage, and ordinary alfalfa silage. The low-moisture alfalfa averaged 39.8 per cent moisture. A strong wind caused high leaf losses in some of the haylage that dried to 25 per cent moisture. This reduced its feeding value.

Alfalfa silage from the same fields made at the same time averaged 62 per cent moisture. It was stored in a tower concrete stave silo treated with a plastic paint. At filling time, a roll of plastic was unrolled up the inside doors and the silage was covered with a black plastic cover weighted with more silage to make the storage as airtight as possible. This appears to be essential in getting good silage quality preservation.

The low-moisture oat forage was made in the early dough stage, dried to 53 per cent moisture, and preserved in one of the sealed units. It had a high proportion of heads.

Concentrates were fed at 0, 90, 100, and 110 per cent of energy requirements estimated from Morrison's Feeds and Feeding. Concentrates averaged 12 pounds a cow daily.

Cows fed no grain lost weight rapidly, 14 pounds each 5 weeks per cow on the alfalfa silage, 24 pounds on the oat forage, and 7 pounds on the sealed alfalfa. Cows on the higher grain levels gained weight slightly. When grain was fed above requirements, the cows consumed 6.5 to 8.7 pounds less roughage per day.

The trial suggested no differences in the requirements of the excellent quality alfalfa silage and the sealed alfalfa to balance requirements for the concentrates. It also showed larger amounts of dry matter were consumed in the oat forage. The short-strawed, heavy-grained oat forage was higher in energy, apparently, and lower in protein than alfalfa.

The drop in milk per cow produced daily over the 5-week period was 3.2 pounds on the excellent alfalfa silage, 4.6 pounds on the sealed oat forage, and 3.6 pounds on the sealed alfalfa.

Sealed vs. green-chopped alfalfa . . .

A summer trial was conducted with nine pairs of cows in a reversal type of experiment. Each cow received sealed alfalfa and green-chopped alfalfa as well as 10 pounds grain daily, composed of half corn and half oats.

The results follow:

	Alfalfa sealed (lbs.)	Alfalfa green-chopped (lbs.)
Forage per cow daily	45.5	87.5
Weight change per cow	+31.6	+22.8
Daily 4% milk per cow	32.0	32.9

When fed haylage, the cows ate 22 per cent more dry matter daily than when fed green-chopped alfalfa cut twice daily. In our area, it is difficult to have alfalfa in the right stage of growth for green chopping all summer. This means an advantage to using haylage, cut at the best stage of maturity. Supplemental strips of green oats, Sudan, corn, and soybeans could help this situation if green chopping is practiced.

Records showed that green chopping required considerably more labor (45 per cent). This would be less where more cows are fed.

All cows gained in *(Turn to page 496)*

The authors are members of the South Dakota State College dairy department.

6,000 plants lost . . . *between planting and harvest*

If you travel 7 miles per hour, select the plates that will plant 22,000 kernels. This rate should yield 16,000 plants per acre at harvest.

by H. P. Bateman

SELECT SEED PLATE with a cell size that will permit the longer kernels of corn to slip easily through the cell. For the higher planting speeds, use a plate with a little longer cell.

WHEN you read that a high corn yield is predicted for your soil conditions with a population of 12,000, 14,000, or even 18,000 plants per acre it means the number of plants that **survived at harvest.** This information often leaves the impression the planter should be calibrated for this rate.

However, the results of laboratory and field checks at the University of Illinois indicate the calibrating rate should be considerably **greater** than the plants expected at harvest.

Let's examine the results from a typical test to see how the population at harvest compared with the calibrated rate of 16,000 kernels per acre. The results shown below indicate the kernels actually seeded were down to 14,200 per acre.

	Kernels or plants	
	Per acre	Per cent
Calibrated rate at 1 m.p.h.	16,000	100
Kernels seeded at 5 m.p.h.	14,200	89
Plants emerged	13,000	81
Plants after cultivating	11,900	74
Plants at harvest	11,700	73
Plants with ears at harvest	10,900	68

The decrease in the planting rate for the 5 m.p.h. (miles per hour) speed as compared to 1 m.p.h. for calibrating resulted from less kernels passing through the cells. The higher wheel slippage also decreased the rate.

After planting, some of the kernels do not germinate, plants are lost during the cultivation operations, some are lost from insect and disease damage, and some of the stalks do not produce an ear. The final ear count indicated a population of 68 per cent of the 16,000 for which the planter was calibrated.

Compared to the plant population at harvest of 11,700, the calibrating rate was 37 per cent above this value. These values, of course, could change for other conditions.

The seed plate needs to be selected so the cells will be of the correct length to discharge 100 to 104 kernels from 100 cells at the field operating speed of the plate. This is true for the plates that hold one kernel per cell.

For the hill drop plates, which hold the desired number of kernels per hill in one cell, the plates need to be selected to give this number of kernels. Both kinds of plates will give a decrease in the planting rate as the plate speed is increased.

As suggested in most instruction books, a plate with a longer cell should be used for the higher plate speeds.

A different calibrating rate is needed for the various speeds of travel to arrive at the same population at harvest. The variation in the number of plants that may survive at harvest for a given travel speed makes it even more difficult to estimate the correct calibrating rate for a given harvest population.

The new trends, to pull the planter at higher speeds and to plant more kernels per acre, cause the seeding rate to drop a greater amount below the calibrated rate than for the slower plate speeds.

For example, the planter plate turns three times faster for a planting rate of 18,000 per acre at 7 m.p.h. as compared to a rate of 12,000 per acre at 3¼ m.p.h. At the slower speed and seeding rate, the kernels per acre will drop 5 to 7 per cent below the calibrated rate, while at the higher rate the kernels seeded will drop 24 to 28 per cent below the calibrated rate.

Due to the many grades of corn and the variations in uniformity of grading, it is not possible for the machinery companies to provide the exact settings in the instruction book for all the planting rates and planting speeds. In turn, the seed corn kernels vary slightly in size and shape from year to year and from variety to variety.

This non-uniformity of the corn makes it very difficult and expensive for the seed producers to make a sufficient number of tests so the proper plate can be specified for all makes of planters and operating conditions.

In order to be assured of the most accurate seeding rate, it is recommended that you calibrate your planter for the corn to be seeded this year. The same seeding rate may not result with the same plate as used last year, for the same grade and brand of corn. This is due largely to the slight variations in the kernels caused by the different growing conditions from season to season.

The following method is suggested for calibrating your planter to arrive at a plant population at harvest near to the one that will give a high yield for your soil conditions. The increase in the population to use for the calibrating rate is based on estimates from laboratory and field checks of plant losses during the last two seasons.

Step one. Match the longer kernels in the sack to the cells in the plate so the cells are slightly longer than the kernels. Try more than one kernel as length of the kernels may vary from 4/32 to 6/32-inch in a given sack.

A good way to check your selection of plate is to make a test of the plates in the dealer's corn planter test stand. Three revolutions of a 16-cell plate should give 48 to 52 kernels. Check each size plate several times.

Another method of checking the plate is to put a small amount of corn in the bottom of a corn hopper that has been removed from the planter. Turn the plate around three times and count the kernels.

Step two. In the following table select the calibrating rate for the planter speed to be used in the field and the plants you expect to have at harvest. Table shows calibration rate per acre at 1 m.p.h and corresponding kernel spacing in 40-inch rows for three field travel speeds.

	Plants per acre at harvest		
	12,000	16,000	20,000
3 m.p.h.			
kernels	14,500	20,000	26,000
inches	10.8*	7.9	6.0
5 m.p.h.			
kernels	15,000	21,000	27,000
inches	10.5	7.5	5.8
7 m.p.h.			
kernels	16,000	22,000	28,000
inches	9.8	7.1	5.6

*For 36-inch rows increase the distance by 10 per cent.

As shown above, to obtain 16,000 plants at harvest a calibrating rate of 21,000 kernels per acre is suggested for a planting speed of 5 m.p.h. This calibrating rate requires a planter setting that will drill the kernels 7½ inches apart or hill drop 3 kernels on a spacing of 22½ inches for 40-inch rows.

Step three. Set the planter to the setting for the spacings given above. This setting will need to be checked for the kernels delivered since some companies do not allow for enough wheel slippage in their suggested settings. Or you may be using a different tire size or pressure than specified.

Step four. If possible set the planter to hill drop and pull the planter *(Turn to page 494)*

The author is an assistant professor of agricultural engineering, University of Illinois.

FIELD-TESTING THE OLIVER 25 COMBINE

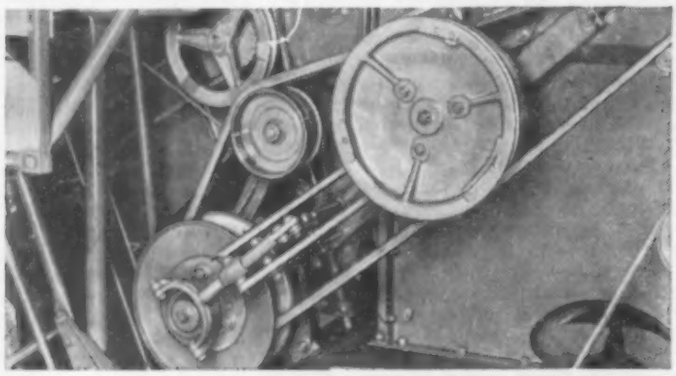
Time: 1 hr.

Acres combined: 4.05

Grain saved: 99.2%

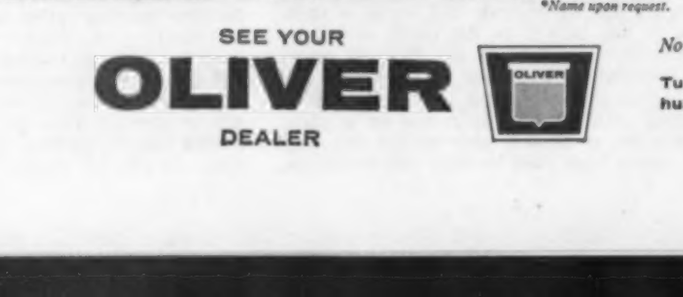
Fuel cost per acre: 16½¢

2:12 P.M. Around comes the Oliver 25 on the second 10-foot cut—accurately checked by a stop watch in a nonstop test. How much will it harvest in an hour—and how much will it save? Here it is in a heavy stand of Indiana winter wheat—but not a whimper from this rugged Oliver, a seasoned performer in bumper corn-belt crops, from grain to beans to corn. It's built for the toughest and rankest crops grown.



2:25 P.M. Heads are crinkled and hang low, but the finger bats on Oliver's semi-revolving reel (special) descend vertically, sweep them backward gently. It's at the cutter bar, where grain losses are greatest, that an Oliver saves the most. And in price, it's the biggest reel bargain on the market.

2:40 P.M. Conveniences such as this hydraulic variable-speed drive help set new combining records. With a light touch on a lever, the operator controlled ground travel at precisely the right speed to assure top threshing efficiency—an average of 3.3 m.p.h. in second gear. Cylinder speed, too, is easy to adjust.



3:00 P.M. One hour—and out of the 45-bushel tank, then on to a local elevator for the weigh-in. Result? Exactly 9540 pounds from 4.05 acres, averaging 39.19 bushels! That's performance hard to match—one-third more than the pleased farmer-owner expected!* And harvesting efficiency—determined by gleaning a measured area—hit a high of 99.2%. Fuel cost? Only 16½c per acre, figuring gasoline at 19c per gallon. Performance with a corn head was comparable. This is the year to begin saving *more*—with an Oliver.

OLIVER CORPORATION, Chicago 6, Illinois

*Name upon request.

SEE YOUR **OLIVER** DEALER

Now! Earn 6% on cash or trade.

Turn to your dependable Oliver dealer when you need hurry-up service and genuine Oliver spare parts.

Judging contest winners

(Continued from page 477)

exhibits. The club was anxious to credit their county 4-H agent, Robert Blatchley, whose enthusiasm and encouragement have contributed much to the club's success. The South Hill Club, winner of Honorable Mention last year, is also active in judging as well as demonstrations. The Somers own a registered Jersey herd.

Another New York club placed second. It is the Springfield Willing Workers Dairy Club, East Springfield, N. Y., led by Ervin Fassett.

One of the perennial 4-H club winners ranked third. It was the Montgomery County Jersey Calf Club, led by Robert Stiles, Rockville, Md., that was first prize winner in 1956 and 1960, second in 1951 and 1955, and in the Honorable Mention group in 1953-57-58.

Following is the list of winners:

4-H Club Winners and Leaders' Names

1. Willowbrook Boy's 4-H Club; Cortland, N. Y.; Henry V. Phillips
2. Springfield Willing Workers Dairy Club; East Springfield, N. Y.; Ervin Fassett
3. Montgomery Co. Jersey Calf Club; Rockville, Md.; Robert Stiles
4. South Hill Dairy Club; Cortland, N. Y.; Mr. and Mrs. Clarence Somers

Honorable Mention:

Lebanon Happy Troopers; Watertown, Wis.; Roy E. Holz
Canisteo Valley 4-H Stars; Addison, N. Y.; Mr. and Mrs. Thomas Kane
Beaver Meadow 4-H Club; Homer, N. Y.; Mrs. Byron Dever
Lull Brook 4-H Club; Hartland, Vt.; Viola Durphy
Country Crows (senior group); Lyons, N. Y.; Glen L. Giesy
W-4-H Club; Williamstown, Mass.; Lawrence D. Herron
Mansfield Dairy Club; Columbus, N. J.; Ronald N. Esler
Manchester Junior Livestock 4-H Club; North Manchester, Ind.; Robert Burch
Fenton Progressors 4-H Club; Lone Rock, Iowa; Herschel W. Hartman
Portland Boosters 4-H Club; Marshall, Wis.; Edward Plummer

Mississippi State University, coached by Dr. C. B. Browning, topped the college division in which 146 teams from 40 states, Canada, New Zealand, and Southern Rhodesia participated. They were in the Honorable Mention group in 1955 and 1959. Mississippi's score of 476.6 gave them a comfortable margin over Friends University, Wichita, Kans., coached by E. Lee Raines, that had a score of 463. The Kansas school was in the Honorable Mention group in 1950 and 1959. Ohio State University, last year's winner, as well as winner in 1957, placed third with a score of 460.2. Ohio was coached by Harold Kaeser and Harry Barr.

The list of winners follows:

College Winners and Coaches' Names

1. Mississippi State University; State College; C. B. Browning
2. Friends University; Wichita, Kansas; E. Lee Raines
3. Ohio State University (Team No. 2); Columbus; Harold Kaeser and Harry Barr

Honorable Mention:

Western Illinois University; Macomb; Loren K. Robinson.
California State Polytechnic College; San Luis Obispo; Russell Nelson
Pennsylvania State University; University Park; James R. Nichols
Modesto Junior College; Modesto, Calif.; David Rising
Western Kentucky State College; Bowling Green; Billy M. Adams
Kansas State University; Manhattan; G. B. Marion
Washington State University; Pullman; R. E. Erb
University of Missouri; Columbia; J. D. Sikes
Cornell University; Ithaca, N. Y.; G. W. Trimberger
University of Illinois; Urbana; J. L. Albright

More than 1,200 farm fatalities were a result of a tractor accident. One-third of these occurred on the public roads. Upsets and collisions led the list.

Quarter of fluid milk to manufactured products

About one-fourth of all fluid milk received in 104 midwestern markets goes into surplus uses.

According to University of Missouri agricultural economists, this surplus fluctuates widely during the year and on different days of the week. Typically, the surplus volume in May is three to four times as large as in late summer or fall.

Fluid milk is high enough quality to be bottled and consumed as bottled milk and cream products. When supplies are larger than needed for bottling, they are diverted into manufactured dairy products. Ice cream, cottage cheese, butter, and non-fat dry milk are the most common uses for surplus fluid milk.

Producers' bargaining cooperatives have assumed much responsibility for handling the surplus milk, although only about one-third of these organizations operate manufacturing facilities. Several arrangements are used to handle surplus.

In most markets, the surplus disposal arrangements appear to be reasonably satisfactory. In some markets, handling of all surplus by producer cooperative is an advantage to both producers and dealers.

Changes in milk marketing techniques such as shifting to bulk milk handling will make improvements possible in surplus milk handling arrangements.

Detailed findings of this study are reported in North Central Regional Publication 113, "Disposing of Surplus Fluid Milk in Midwestern Markets." Agricultural experiment stations in 13 North Central States and the U. S. Department of Agriculture cooperated in the study.

The publication provides information about the amount of surplus fluid milk, agencies involved in handling it, arrangements used in disposing of it, and conditions influencing those arrangements. Copies can be obtained by writing Mailing Room, Mumford Hall, Columbia, Mo.

Bank cashier: "But with whom do you want to open a joint account?"

Patron: "Oh, I'm not fussy. Just anyone with a lot of money."

NOW! Small-herd producers can go "bulk" at savings of up to $700

...with this NEW MUELLER economy model bulk milk tank

Available in 150, 200, 300 gallon sizes; self-contained or remote installation; stainless steel or galvanized exterior.
Self-contained model

You can begin enjoying all the advantages of bulk milk handling that only larger-herd producers could afford before now. MUELLER has designed a bulk milk tank especially for 10 to 20-cow herds and it costs $400 to $700 less than conventional models. Yet you get a tank that fully meets 3-A sanitary and cooling standards.

The saving largely results from economical cylindrical construction, which is practical only in smaller tanks. A galvanized exterior also helps lower the price, although a stainless steel exterior is available at slightly extra cost. Thanks to MUELLER's engineering know-how, most of the famous MUELLER quality features have been retained.

So quit struggling with those cans! Quit losing money on spillage and stickage. Lower your electric bill and start handling milk the profitable, modern way with this new MUELLER *economy-model* bulk milk tank. See your MUELLER dealer or mail coupon for further details.

New economy-model "R" tanks have these deluxe MUELLER features

- DIRECT EXPANSION REFRIGERATION—a great majority of all milk tanks now sold are of this type
- MUELLER-DESIGNED EVAPORATOR COIL is stainless steel and forms a definite route for the refrigerant for most efficient cooling
- NO COPPER COILS to corrode—NO WATER PIPES or spray nozzles to clog—NO WATER PUMP to wear out
- CORKBOARD INSULATION plus NO METAL-TO-METAL CONTACT between inner and outer shell (except at lip) minimizes cooling loss
- EASY CLEANING and LOW HEIGHT
- BUILT-IN CONTROLS and INSTRUMENTS
- STAINLESS STEEL top-quality workmanship

PAUL MUELLER COMPANY
P.O. Box 150, Springfield, Missouri

I would like:
☐ More information on new MUELLER economy bulk milk tank
☐ Name and address of nearest MUELLER dealer

NAME_____
ADDRESS_____
CITY_____ STATE_____
I am a: ☐ Producer (herd size_____) ☐ Student ☐ Plant Operator
☐ Other_____

PM

Other quality MUELLER bulk milk tanks available in sizes from 90 through 2,000 gallons to fit every herd, every milkhouse.

PAUL MUELLER CO., SPRINGFIELD, MO.

EDITORIAL COMMENT

ROUGHAGE FOR CALVES

WE RECENTLY saw in the South a group of yearling Holstein heifers that exceeded Ragsdale's growth standards and yet the only feed these heifers had received was the early milk supply and then pasture for the rest of their lives. In other areas of the country research workers have probed the nutritional unknown trying to determine if roughage could play a greater role in the diet of dairy calves.

This type of research work is intriguing and yet leaves us with an uneasy feeling. We are all interested in more economical ways of growing out big, strong, promising heifers. But no one should be misled. There will be a lot more to this type of calf raising than turning a heifer out to pasture or keeping the manger full of hay. The heifers we saw in Louisiana were on the finest forage we have seen anywhere in the United States. In another part of the state we saw heifers of a similar age also on pasture and you could count their ribs from the road. These railback heifers were being raised on roughage "the easy way."

FARMS SUBSIDIZE CITIES

THROUGH the migration of farm youth to the cities, North Carolina's farm families subsidized the urban population by about $696 million during the decade of the 1950's.

This off-farm migration is taking some 7 to 8 per cent of the annual gross farm income in North Carolina, according to agricultural economist James G. Maddox.

Our love of our children and our willingness to sacrifice for their happiness leads few of us to give much thought to this out-movement of capital from our farm communities. Looking at it impersonally, however, it is an obvious financial drain.

Dr. Maddox suggests there are at least two ways to lessen the loss. One would be through financial aid to education. Another would be to expand industry into rural areas. We like the latter course.

Normally, industrial development in country communities is a project primarily of those in businesses and services on main street in the country town. Perhaps farm organizations should join in these efforts to build employment and career opportunities closer to the farms which provide this fine young talent.

CONFLICT ON PROTEIN

WITH more high-quality legume pasture and hay being fed in recent years we have seen many herds overfed on protein. Farmers have been buying more protein in their grain mixture than was needed. In fact, in many instances we have seen rations too high in protein and too low in total digestible nutrients.

In some areas of the country, however, a reverse situation exists. Because of the difficulty in growing alfalfa where the alfalfa weevil is damaging, dairymen are leaning heavily on corn silage and limiting the legume hay. Here we have seen evidence the ration is high in energy but short on protein.

Don't feed grain by habit. Carefully fit your grain ration to your available roughage and feed according to the production and condition of each individual cow. To do otherwise is to shortchange yourself on your feed dollar . . . and in the milk check.

COOPS MUST PRODUCE RESULTS

THERE are persons in the dairy field (and among its advisors without portfolio) who refuse to even look at, or who give only lip service to, any and all ideas advanced in the interest of trying to develop more effective and dependable methods of establishing farm milk prices. In fact, there are so many of them that an outside observer might be led to believe that our milk pricing "status quo" is an old and sacred inheritance that, for long years, has and still is serving satisfactorily.

Actually, however, this "status quo" of ours is as new as a 1960 model car in relation to the years that milk has been produced and marketed. It is as different from our prior pricing philosophy and methods as the automobile is from the horse and buggy.

Should great-grandfather come around and take a look at how we are currently establishing and maintaining milk prices, he quite likely would jump right out of his leather boots and swear that we were a bunch of fools who were going to ruin our business and, quite likely, the whole country as well.

There are those today who predict that we will. It could be that we are. Whole civilizations have fallen before now, and some of them because of mistakes in policies and programs, but **more because they became content** with their "status quo" and neglected to continue searching for better methods of keeping abreast of a developing world.

In my opinion, anyone who accepts a salary from dairy farmers has an obligation to earnestly seek to learn what holds the greatest promise for improving the dairyman's position, and then prove themselves to be leaders by influencing and guiding the thoughts, opinions, and actions of their members in that direction — by recognizing an obligation to move in the direction that appears best for dairymen even though it may create new operating problems.

Our dairymen established their cooperatives in the interest of helping themselves, not plant operators. If a cooperative's management cannot successfully handle the same problems that non-cooperative operators must meet, they had better sell the plants because they will be a luxury farmers cannot afford.

I still pin my faith upon cooperatives as the tool farmers will use to gain and maintain their rightful place in the future economy of our country. And of one thing I am certain, tomorrow's dairymen — and some of today's dairymen — are not going to be enamored by the mere philosophy of farmer cooperatives as were many of their fathers and grandfathers.

Cooperative leadership all across this country, not just a few spots here and there, must produce results that are reasonably satisfactory to most of their members and potential members — not what someone else thinks should be satisfactory to them, but what they think is satisfactory — else they, the members, will turn to other types of organizations as they seek leadership that has the vision and the aggressiveness to keep milk pricing philosophy, methods, and results abreast of the economic-environment changes that have, and will continue to, come in this jet and soon space travel age.

—Excerpts from an address by Stanley H. Benham, past president, Dairymen's League Co-operative Association, before annual meeting of the National Milk Producers Federation.

76 years ago...

There are two sets of theories which seem to govern farmers and which divide them off into two classes.

1. The skilled, well-posted farmer looks upon his farm as a factory where things are manufactured for sale, where the making of salable things cannot be done without the investment of plenty of labor, and where the utmost thoroughness and good finish in labor must be had. With him it is not so much the number of acres tilled or the number of cows milked as it is the return in profit of each acre and each cow.

This sort of farmer looks at the business of farming rightly, and from the only safe and truly economic standpoint. As he becomes accustomed to this plan of doing things he broadens and enlarges his capacity and finds himself able to handle more acres and more cows with the ratio of profit.

2. The second class is made up of men who are all the time trying to cultivate more land than they can cultivate thoroughly and well, and keep more cows than they can make efficient and profitable under the mistaken notion that good profits lie at the end of that path.

They have a very "expensive looseness of judgment," a helter-skelter way of calculation like a "cut and cover" way of plowing. Always in a hurry they never really "get there." They have no time to stop and read well, nor think well. Consequently, they do not have the judgment to do things well.

Such men abound everywhere. Yet they can rarely be convinced that their lack of success is due to their undeveloped and untrained methods of observation and thinking. Their judgment is poisoned with "a loose, superficial haste" and most of them die before they learn that great lesson of life, that it is only skilled labor that brings a good paying profit in the end.

A few are graduating all the time out of the second class into the first class. To do this one must look on farming as business of brains. Such a man will feed his brain as well as his body. Starvation soon brings weakness and final collapse in either case.

What a great host of starved minds the business of farming supports. No other business would do it for a moment.

W. D. Hoard

Questions from Our Readers

Simazine on corn

In spraying simazine as a band treatment for corn, what size jet nozzle would you recommend? What could we do to insure the correct amount of spray per acre?

Wisconsin D.E.C.

Simazine is a wettable powder which does not dissolve in water. It requires the use of larger nozzles. I would suggest getting an 8003E nozzle tip and a 50-mesh screen. The rig also must be matched to the speed of the corn planter.

1. Determine the time required to drive tractor and planter for 330 feet or 20 rods.

2. With the planter stationary but sprayer in operation and pressure set to desired 30 pounds, determine amount of spray from one 8003E nozzle for the time interval determined in Step 1.

3. Compute amount of spray with one nozzle each 40 inches.

Gallons x 40 = gallons per acre
or
Pints x 5 = gallons per acre
or
Ounces x .31 = gallons per acre.

For example, assume it takes 1 minute, 15 seconds to drive 330 feet, and amount of spray caught in 1 minute 15 seconds was 2½ pints. 2½ x 5 = 12.5 gallons per acre.

This is the average amount of spray applied over the acre and means that 125 gallons would spray a 10-acre cornfield. The amount of the simazine to add to the 12.5 gallons depends on the band width. If the nozzle height is adjusted to spray a 10-inch band, then ¼ of the area receives all the spray, and use ¼ the amount of simazine you would use if spraying broadcast.

If 4 pounds per acre would be used when spraying broadcast, use 1 pound per 12.5 gallons when band spraying. (Note the 12.5 gallons is for example only.) If the nozzle is set higher and sprays a 13.3-inch band, ⅛ of the area is band sprayed and you would use 1½ pounds simazine per 12.5 gallons.

—ORRIN I. BERGE
University of Wisconsin

Higher plant population

Last year, I figured I lost over $1,000 worth of corn because of low population.

I checked my seed plates with the seed corn company's recommendation and adjusted the planter until I got 18,000 kernels per acre. When I made a count in the fall, I had only 10,000. What can I do next year to avoid this?

Michigan J.W.F.

From 10 to 15 per cent of the kernels will be lost in germination and this should be considered in the original planter calibration. Actually, your problem is shared by many other corn growers.

Our modern planters are designed for tractor planting at speeds of 4 miles per hour and over. In designing seed plates for high speed planting, a loose fit between the seed and cell is necessary. If you calibrate the planter by slowly turning the drive wheels, some of the cells will take two kernels. This would give an apparent seeding rate much higher than if each cell delivered only one seed. Therefore, it is recommended that you make sure your planter is adjusted for the population you want, then calibrate by driving down a lane at planting speed.

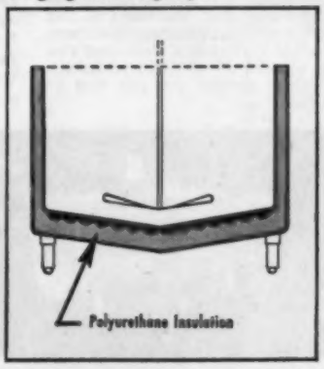
—WENDELL BOWERS
University of Illinois

ED . . . and EMMA

"D'ya mind, Bossy?" "Oh, I forgot the salt again."

CONSTRUCTED TO INSURE ACCURATE CALIBRATION

The most modern development in insulation — polyurethane — is one of the reasons for this tank's accurate calibration (and the resulting payment for *all* your product). The polyurethane is foamed into the tank and hardens into an indestructible bond with the inner liner and outer jacket. The two-inch minimum thickness of solid polyurethane rigidly resists compression; keeps the tank from bulging even slightly!



A heavy gauge stainless steel, single shell liner and outer jacket, and the tank's V-bottom also contribute to the strength and stability — the accurate calibration — you get with Cherry-Burrell's direct expansion tanks.

THERE ARE NO COOLING "DEAD SPOTS" IN CHERRY-BURRELL TANKS

Compare Cherry-Burrell's *single-pass* channels with the less effective tubular type. Tubular channels leave 'dead spots' between coils, *and* ineffectively cooled product. Only Cherry-Burrell tanks have all-welded, *single-pass* Freon systems. This is another reason why Cherry-Burrell cools milk more rapidly at lower cost. The tank's V-bottom also allows more product to be exposed to coolant to enhance cooling.

As you can see, your product is cooled more effectively by Cherry-Burrell Direct Expansion Bulk Milk Tanks. And you get paid for every drop of your milk — because of the Cherry-Burrell tank's accurate calibration.

A Cherry-Burrell dealer will be glad to explain these, and many other, advantages. See him today.

CHERRY-BURRELL CORPORATION
CEDAR RAPIDS, IOWA

44 REASONS WHY

MILKEEPER®

is the FINEST BULK TANK that can be MADE or you can buy...

we call this card a "TRAVELER"— it protects you 44 ways because...

A quality check card like this "travels" with each individual CP MilKeeper Bulk Farm Cooling Tank through 44 production check points at our Lake Mills, Wis., factory. Every check point means extra value for you. *Quality is never an accident.* It is the result of painstaking care and planned production techniques.

P[illegible] NO. ____
ORDER NO. ____

CHECK LIST

1. Tensile Pull ___
2. Spot Welder ___
3. Seam Welder ___
4. Solder Header T[illegible]
5. Hydro Pressure

MEETS A3 STANDARDS

11. Dehydrated Dew
12. Weld Angles on S
13. Welding Heads to
14. Grinding of Weld
15. Dye check cente
16. Check welding c
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19. Check grinding
20. Check welding
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26. Check valve for
27. Check drain ___
28. Check agitator or
29. Check lapping of a
30. Check cleaning of
31. Check charge of
32. Check blasting ___
33. Check Metalizing
34. Check Primer coa
35. Check 1st coat vi
36. Check 2nd coat vi
37. Check tank for as
38. Check for proper a
39. Check alignment o
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41. Check final cleaning
42. Check final touch of
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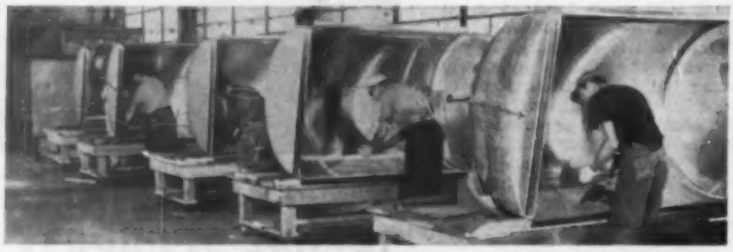
44. Check final inspect



It still takes handwork . . . to meet CP quality construction standards, no matter how advanced the production techniques. These CP craftsmen help to produce the satin-smooth, super-finished milk surfaces in MilKeeper Tanks.

building the toughest "skin"... Here zinc metallizing is applied through an oxyacetylene gun that liquifies the zinc and sprays it onto the grit-blasted surface. This is part of MilKeeper's triple-clad zinc and vinyl exterior — the longest-lasting, easiest-to-clean surface you can find on any bulk tank.

trouble free as your household refrigerator... Here in this controlled humidity area, the famous CP Capillary Tube MilKeeper Refrigeration System is Factory-Sealed by skilled technicians. Thousands of these systems have operated for years with never a service call!

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Please send my copy of MilKeeper, Bulletin C-1-100.

Name_____
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City_____ State_____

Count 10 . . .

(Continued from page 473)

You should figure that it will take 10 years to get from the 35- to 40-cow size to 100-cow size on a sound, money-making basis.

Brown reports that recently the big herds in Michigan have come through with higher production per cow than herds of traditional size, but this should blind no one to the fact that it is very hard to maintain production per cow through a period of sudden expansion. Less culling, stretched-out management, interference by construction projects, and slips of one kind or another take their toll.

And crop production, in an oft-quoted study of his, has shown up as the source of 50 per cent of the net income from dairy farming in Michigan. Late planting, poorer weed control, delayed harvesting, and a budget stretched too far to allow for needed fertilizer, tend to cut into crop yields when dairy herds make a sudden jump in size. It takes continued high yields of crops and milk to make an expanded operation succeed.

Grow, yes, advises Brown. Probably all dairy herds in the state are growing to some degree. But before you leap off on a sudden expansion program, get yourself several pads of paper, a fistful of sharp pencils, and settle down for a long, hard session of figuring.

The clincher in Brown's advice is this comparison of what it takes to make a reasonable labor income on large and small dairy farms in the state.

Herds of 35 or 40 cows, employing two men, can succeed on a gross income per man of $11,000 to $12,000 a year.

But herds of 100 cows require a gross income per man of $17,000 to $20,000 a year to do as well.

This is what records of cooperative account keeping dairy farms in Michigan show. **THE END**

Dairy scientists to meet

The American Dairy Science Association will meet at the University of Wisconsin, Madison, June 11 to 14. The official opening session of the 56th annual meeting will start Monday morning, June 12, and continue through Wednesday afternoon, June 14.

New suspect in heart disease

Using radioactive tracers, it has been determined that human artery walls manufacture some of their own fats instead of taking them from the blood stream, says Drs. D. B. Zilversmit and R. F. Ackerman (University of Tennessee) in the March "Circulation," scientific journal of the American Heart Association. This further strengthens the growing concept that heart disease is a physiological disease (that is, like diabetes) rather than the simple result of what fats you eat.

—FOCUS,
NATIONAL DAIRY COUNCIL

Merrill named dean

A new dean of agriculture has been named at Rutgers University, New Brunswick, N. J. He is Dr. Leland G. Merrill, Jr., a native of Danville, Ill., and a graduate of Michigan State University. He succeeds Dr. William H. Martin.

Dr. Merrill was the author of the article on alfalfa weevil control appearing in our March 25 issue.

JUST OUT! THE Scout®

It's a hardtop pickup... open air roadster... off-road workhorse... all in one!

INTERNATIONAL brings you a whole new idea in low-cost transportation—the Scout! It's an all-purpose vehicle only 67 inches high on a 100-inch wheelbase, a snug little runabout that...

- seats three people in comfort,
- carries sizeable loads in a 5-ft. pickup body,
- has fold-down windshield, removable cab top,
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- gives you all-wheel-drive or rear-wheel-drive.

The Scout is INTERNATIONAL-built and serviced—nation-wide. See your Scout Dealer now!
International Harvester Company, Chicago

This is the Scout with the steel top on—a neat and nimble pickup that's fun to drive for business or for pleasure.

Same Scout with the top off. Easily removed in minutes to give you a sporty roadster for any kind of outdoor activity.

Same Scout stripped for action. Take off the door glass, remove doors, fold down the windshield for rough jobs, tough country.

Same Scout converted to delivery use with optional full-length Travel-Top, complete with side and rear windows, lift gate.

HIT THE TRAIL TO LOW-COST TRANSPORTATION WITH THE Scout IH®

Super Hayliner 69—New Holland's 14 x 18 baler, with automatic wagon-loading feature, Flow-Action feed, Tractor-Seat Controls.

Now bale twice as fast with half the labor!

Today there's a new way to bale—that lets one man bale and load faster than a 3-man team! Fully proved on hundreds of farms. Choice of five baler models. New compact model with automatic wagon-loading costs no more than many balers alone!

Here's the biggest farming news of '61—*proved, practical one-man haying!* No longer need bales be stacked in the wagon by slow, costly human labor. Now one man can bale *and load* automatically—in half the time it takes with manual loading!

How it works

The new system consists of a New Holland Hayliner—the baler that outsells every other—plus a simple, foolproof mechanism that "airlifts" the bales into the trailing wagon. You position the bales right from the tractor seat. Doesn't miss—even on turns.

One-man haying has been fully proved on hundreds of farms. It's ready for you *now*.

What it costs

Because of its simplicity, this New Holland baling method costs surprisingly little. The new compact Hayliner 65 with Bale-Thrower costs no more than many balers without automatic wagon loading!

Any Hayliner model will soon pay for itself:

- **You will save your own time,** because you will bale steadily at much faster speed.
- **You will save labor costs.** Instead of loading wagons, your helpers can be doing other, more profitable work. You needn't hire extra help for haying, either.

At your dealer's now

If you already own a twine-tie New Holland Hayliner, you can easily convert to one-man baling and loading. If your present baler is another ma' your New Holland dealer will offer you a gener trade-in, pay-as-you-save terms. See him now for a demonstration; enjoy one-man haying *this* year!

BALER BOY TWINE gives you imported twine economy, *plus* New Holland's rigid quality control. For extra strength, ask for New Holland's Super 9 or Long 10 twines.

NH NEW HOLLAND
"First in Grassland Farming"

TEAR OUT NOW—MAIL TODAY

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805 First Street, New Holland, Pa.

Please send full information about your Hayliners with automatic wagon loading.
I put up_____tons of hay per year.

Name_____

Address_____

Man with a message!

Jack Oelker, a dairy farmer of Urbana, Ohio, is a man with a message. Jack and his wife, Martha, and their children, Susan, 8, Sandra, 6, and Carol Ann, 4, will be familiar faces to millions of Americans this spring as the official "poster family" of the American Cancer Society.

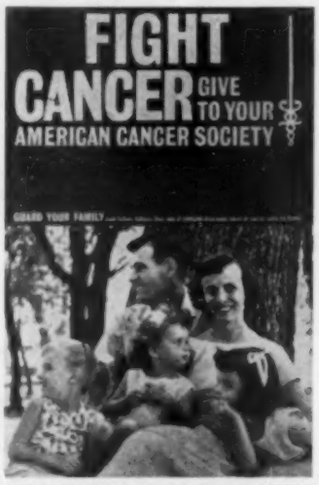
The fight against cancer has particular meaning for the Oelkers. In August 1950, five weeks after his marriage, Jack went to see his dentist, complaining of a "sore jaw." There began a chain of events that led to diagnosis of cancer of the upper jawbone.

In September 1950, he was operated on and the tumor was removed. It takes five years free of cancer for a patient to be considered cured of the disease. In 1955, Jack Oelker entered the ranks of the more than 1 million Americans cured of cancer.

This past February, the family was asked to participate in a meeting, in Louisville, Ky., of some 700 volunteer leaders of the American Cancer Society. Arrangements had to be made in order to keep the 400-acre "Oelker Farms" running smoothly in Jack's absence.

Jack told the large audience of the personal satisfaction he derives from "trying to help my neighbor by telling him that cancer, in many cases, can be cured if detected in time."

He hopes to increase that satisfaction during the American Cancer Society's Crusade this spring by bringing into a record number of American homes the message of family protection and the need for more funds for research.



THE HAPPY OELKER FAMILY as it appears on the official poster of the American Cancer Society.

Iowa Guernseys average $340

The Iowa State Spring Guernsey Sale, held March 25 at Waterloo, saw 42 head sell for an average of $340.

Elmwood Lena, a bred heifer consigned by Arnold Pancratz of Dubuque, sold for $600 to O. R. Bently and Son, Ames. The same price was paid by Alvin W. Hitz and Son, Polk City, for a bred heifer consigned by O. H. Liebers and Son, Lincoln, Nebr.

Top-selling bull was a son of "Bonanza" consigned by Alvin W. Hitz and Son and purchased by Clark Remer, Cedar Falls, for $380.

Following is the sale breakdown:

4 cows averaged	$396
11 2-year-old cows average	368
16 bred heifers averaged	394
7 4-H calves averaged	159
4 bulls averaged	310

FEEDING

by J. K. Loosli

What is "quality" forage?

We use the term a lot. Everyone wants it. But how do we get it? And why does it make so much more milk . . . at less cost? Here's what the cows tell us.

SPRING and summer are busy times on dairy farms and as a result, good intentions to cut the hay crop early often become side-tracked because of the pressure of other farm work. Rainy weather also often delays cutting or damages forage after it is cut.

Speaking of rain damage, frequently I see dairymen in central New York State burning hay in the windrow the middle of June because it had been rained on for nearly a week and was badly discolored. This is a very foolish and wasteful practice.

Early-cut hay, even though rained on for a week or 10 days and heavily damaged, may still be better feed, pound by pound, than the same kind of hay cut a month later and cured without weather damage.

Cows will usually eat more of the earlier cut, damaged hay and produce more milk on it than on late-cut, bright-colored hay that is mature. Cows seem to care less about bright green color than Federal hay graders or hay buyers.

Of course, rain does lower the value of hay. That's why we use barn dryers, or make forage crop silage or haylage.

The important thing to understand is that **stage of maturity** when forage is cut is far more critical in determining nutritive value than method of curing or storing.

Higher digestibility, too . . .

In a recent report Dr. S. T. Slack (Cornell Extension Bull., 994, 1961) has illustrated well the reasons why stage of maturity is so important in determining the feeding value of forage. He points out that lowered digestibility and lowered intake are the major factors that depress growth rates of cattle and milk yields of cows on poor forage. The data in the table show the relative value of forages at different stages of growth:

Stage	Grasses TDN	Grasses D.P.*	Legumes TDN	Legumes D.P.
	%	%	%	%
Vegetative	63	12	63	17
Bud	57	9	57	13
Bloom	50	6	50	9
Mature	44	3	44	6

* Digestible protein. Air dry basis.

The approximate TDN (total digestible nutrient) value of both grass and legume forages decreased from 63 per cent, or higher, in the early growth when they make best pasture, down to 44 or even less, as they mature and form seeds. Various kinds of plants deviate less from this general trend than one might expect but, of course, crops do differ.

Digestible protein content varies more widely than TDN, legumes always being higher.

As Dr. Reid pointed out in the previous issue, cattle will eat much more immature forage than they will of the same plant as it becomes mature. Intake differs even more widely than the digestibility.

Controlled tests have shown that milking cows will eat as much as 3.5 pounds of excellent hay or dehydrated grass per 100 pounds of body weight daily. On late-cut, poor-quality hay the intake may fall as low as 1 pound per hundredweight.

For a 1,200-pound cow the actual hay intake may thus vary from 12 to 42 pounds per day depending on the kind of hay. On the poor hay alone the mature cow would do well to maintain her body weight, but on the best hay she could produce 40 to 45 pounds of milk, as well as maintain herself in good condition.

Researchers have assumed that in cattle and sheep appetite is controlled largely by rumen fill. When an animal has eaten feed to give a certain weight of material in the rumen (or perhaps to distend the rumen) it stops eating. In all animals digestion is a continual process whenever there is food to be digested.

Fine hay digested faster . . .

In the rumen, the hay and other feeds are soaked and softened by saliva, and bacteria digest the protein, carbohydrates, and the fibrous parts of the plants. When she eats, a cow chews forage only enough to swallow it, but after she is well filled she ruminates, or regurgitates the coarser material and chews it finer.

Only after forage has become broken into fine particles can it pass through the small opening from the rumen into the true stomach for final digestion. Mature, stemmy forages take much more time to be broken down in the rumen than soft plants. Finely-ground hay may pass through with little breakdown of cellulose or fiber.

This means that it may take 3 or 4 days for the rumen to break down 50 pounds of straw dry matter, whereas 10 to 12 hours might be long enough to process 50 pounds of dry matter from good pasture or early cut hay.

The **rate of digestion** seems to be the key to the biggest limitation to forage utilization. Unfortunately, we do not have any reliable measure of rate of feed passage or digestion.

Actually, to measure the total feed a cow will consume is about as useful as any other index at present, since she cannot consume large amounts day after day unless the rate of digestion is rapid.

This means, too, that **total milk production** may be the best single measure after all, because a cow cannot make a lot of milk without consuming and digesting a lot of feed. Of course, appetite of individual cows differs widely, also.

But unless you have good forage you cannot tell good cows from average cows. Only with top quality forage combined with proper concentrates and general good management can one do a good job of selecting cows for top production.

Now in one mower line all the features farmers demand!

Cuts clean . . . cuts smooth . . . cuts fast! Matches mowing to your haying speed!

No matter what type of mower you prefer, you get *more field-proved features* when it's a New Holland! For example, check the quality features of the New Holland "47" semi-mounted Mower:

- **Heavy-duty guards** stay in line. Firmly seated against extra-thick cutter bar.
- **Universal hitch** fits most popular make tractors.
- **Ledger plates** are beveled; keep their sharp, saw-tooth edges.
- **Pitman sheave and flywheel** are cast in one piece to absorb shocks. Fewer bent shafts and sheared keys.
- **V-belt sheave** is quiet; quickly adjusted for proper tension. Gives slip clutch action without complicated adjustments.
- **Tilt adjustment** (crank type) gives you clean cutting action in a wide variety of crop conditions.
- **Built-in lead and lead adjustment means** cleaner cutting with less power.
- **Double-hinged inner shoe** and shoe support, both front and back, give extra sturdiness and flexibility.
- **One-piece welded frame** has no bolts to work loose —always stays tight.

There's a New Holland Mower to fit your needs: "47" semi-mounted, "45" fully mounted and "46" trail-type. See your New Holland dealer now; have him demonstrate the mower you need, right on your own farm! So easy to own, too, with his flexible finance plan!

FREE BOOKLET! Write New Holland Machine Co. Division of Sperry Rand Corp., New Holland, Pa.

New Holland "47" Semi-Mounted Mower cuts your crops with effortless speed. With a New Holland "404" Crusher or "401" Crimper, you mow *and* condition in *one* fast trip!

New Holland "46" Mower (Trail-Type), attaches to almost any tractor by dropping a pin into the drawbar.

NH NEW HOLLAND "First in Grassland Farming"

Plan it right . . . build it right . . . run it right

(Continued from page 473)

for each 300 square feet of ceiling.

Doors have been a headache in many milking plants. Careful attention to how they are built and of what materials they are built, will pay dividends in time, effort, heat saved, and blood pressure.

Before construction begins, study carefully the location, the size, and the direction of the door swings. These should be checked with your milk regulatory agency.

One good way to build a warm door that is not apt to warp, shrink, or swell a great deal with moisture changes, would be to use an exterior grade plywood, glued and nailed to a 1½-inch lumber frame. The space resulting from the lumber frame spacer can be insulated to reduce heat loss and surface condensation on the door. The wood parts should be treated with toxic water repellent preservative before the door is assembled.

Be sure that you obtain the best possible direction on how to install the equipment you purchase and that the equipment is installed according to these instructions. Quite a number of milking stalls have come loose from their anchors because of improper installation.

Use input fans . . .

Ventilation is necessary for controlling odors, moisture, and temperature.

Mechanical ventilation is recommended since it can provide positive movement of air and it can be automatically controlled.

Some thought should be given to the source of air that moves into the various rooms in a milking plant, and to where it goes as it leaves the various rooms. A pressurized system (fan forces air in) is recommended for the milk room. The air from the milk room could move into the milking parlor and from there into the holding pen or to the outside where a holding pen is not provided. The holding pen should be equipped with an exhaust system discharging to the outside.

An insulated gravity duct of 100 square inches, located in the ceiling of the vestibule will provide the needed ventilation for this area.

The fans should be able to provide a minimum of six air changes per hour in the winter, and perhaps twice this amount for summertime operation. Anti-backdraft dampers are needed to prevent free air movement from the holding pen into the milking parlor, and from the milking parlor into the milk room when the fans are not running.

The milk room fan should operate continuously during milking. This could be done by the use of an interval timer and the bulk compressor switch wired in parallel, plus a low-level thermostat wired in series and adjusted to prevent freezing. The interval timer could be adjusted to provide a minimum ventilation during the day.

The exhaust fan in the milking parlor should also operate continuously during milking. This could be done with a manual switch or by controlling it with the milking machine vacuum pump.

Supplemental heat will be needed to maintain comfortable working conditions at milking time and to prevent freezing in the milking plant during extreme cold. Also, it will be helpful in drying out parlor or milk room between milkings.

There are a number of ways that heat can be provided. Each of the systems will have certain advantages and certain disadvantages. Often a combination of two has worked out well. Be sure to investigate all types of heating so you will be able to select the best type for your milking plant.

Often heat is provided in one of the following ways:

1. **Cooling the milk. This is concentrated during certain periods of the day, and will not always carry from one milking to another, and is not ordinarily in enough quantity to maintain temperatures at the time of milking.**
2. **Ceiling-hung space heaters. Can be either gas fired or hot water circulated through this heater. Warmed air is lost rapidly when doors are open, and it is difficult to direct heat to the operator's pit — the coldest part of the milking parlor.**
3. **Heat lamps. Often used in combination with space heaters and placed 18 to 24 inches above the operator's head. By radiant heating, they warm the operator and the floor surfaces so that an operator will stay comfortable even if the room air temperature has cooled considerably during milking.**
4. **Floor heat. Is expensive to install and probably somewhat more expensive to operate, but it does have the advantage of providing a warm floor where the operator stands. This is a big factor and helps in keeping the floor dry.**
5. **Forced air furnaces. Are used by a number of operators and often are designed so one or two hot air registers are located in the operator's pit. Air thus directed across the floor helps keep the floor dry and warm and so provides increased operator comfort. Most sanitary regulations will not permit recirculation of air in a farm milking plant; therefore, the operating cost of a central warm air heating system will most likely be high.**

Install enough lights . . .

It is necessary to provide natural and artificial lighting sufficient for the performance of all operations in the farm milking plant. The United States Public Health Service Milk Ordinance of 1953 states, "The milking portion of the barn shall be provided with sufficient natural or artificial light, so arranged to insure that all surfaces and working areas will be easily visible." A 100-watt incandescent or a 40-watt fluorescent per stall is recommended as a minimum in a milking parlor. Reflectors will direct the light as well as protect the lamps from dust, dirt, or damage.

Window glass of 1 square foot for each 10 square feet of floor area is recommended.

Waste disposal needed . . .

Waste disposal is one of the biggest problems for operators of farm milking plants. How to design a suitable disposal system for a particular plant is a real problem. It's an area that requires research and better answers than we now have.

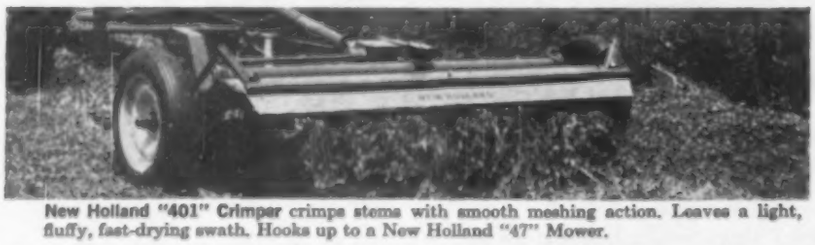
The current recommendation is this: A settling tank must be provided to handle waste from the floor drains in the milking parlor and the milk room. Usually, the wash water from the bulk tank goes to this tank, also. Sanitary plumbing if any, must go to a separate septic tank.

The minimum capacity of the settling tank below the outlet is recommended at not less than 20 gallons per cow. Considerable capacity above this is encouraged since this is a "minimum"; additional cows are usually the rule after a milking plant is in operation.

The tank itself must be so located and designed so it can be cleaned out periodically as the solids build up in the tank. More research is needed to provide better answers than we now have for farm waste disposal. **THE END**

See opposite page for floor plans and coupon for ordering. ➔

New Holland "404" Crusher maintains constant spring pressure to avoid overcrushing. Exclusive pickup height adjustment lowers throat opening closer to ground. Hooks up to a New Holland "47" Mower, so you can mow *and* crush in one operation.



New Holland "401" Crimper crimps stems with smooth meshing action. Leaves a light, fluffy, fast-drying swath. Hooks up to a New Holland "47" Mower.

Pick your way to save a haying day!

Crimp it or crush it . . . only New Holland offers you a choice!

Which do you prefer . . . crimping or crushing? Either way, you can save up to 50% in curing time with these New Holland Hay Conditioners.

Humid area or dry—it makes no difference. Hay conditioning will help you cure your hay faster, more evenly. And you'll get better hay too, richer in the proteins that mean bigger profits for you. That's because New Holland Hay Conditioners—"404" Crusher or "401" Crimper—save precious feed value, give you dependable performance when every moment counts!

See your New Holland dealer soon. Ask him to help you select and to demonstrate the conditioner that's right for your farm. Easy to own, too, thanks to his flexible finance plan!

FREE BOOKLET—write New Holland Machine Company Division of Sperry Rand Corporation, New Holland, Pennsylvania.

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HOARD'S DAIRYMAN
PLAN SERVICE
Fort Atkinson, Wisconsin

Please send me by return mail the plans I have checked. Enclosed is the correct fee for the plan or plans.

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Midwest Plans:

No. 75241 - Milking plant — chute type (floor plan for 4 stalls) $1.50

No. 75242 - Milking plant — single-row, side-opening (2, 3, and 4 stalls) 1.50

No. 75243 - Milking plant — U-type, side-opening (3, 4, and 5 stalls) 1.50

No. 75244 - Milking plant — double-row, walk-through (4 and 8 stalls) 1.50

No. 75245 - Milking plant — double-row, side-opening (4 and 8 stalls) 1.50

Please PRINT name above

Route No. Box No. St. Address

City State

Rakes "whistle-clean" anywhere!

New offset wheels, "floating" basket, prevent tooth breakage, too.

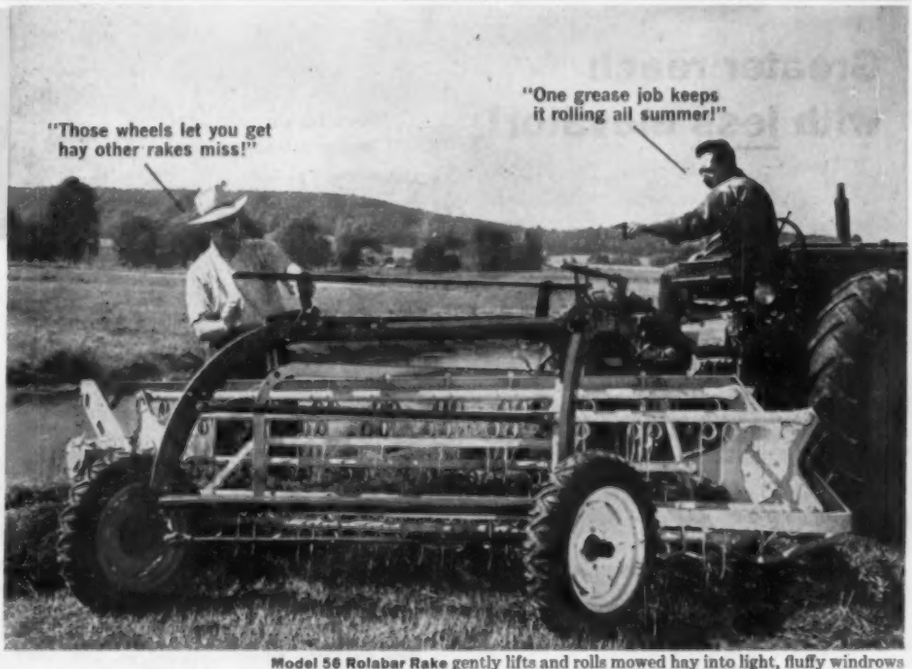
From New Holland—the advanced Model 56 Rolabar Rake! Its cleaner raking action puts more hay . . . more dollars . . . into the windrow. Saves nutrient-rich leaves and blossoms, to cut feed supplement costs. You get all these quality features . . .

QUALITY YOU CAN SEE

- NEW OFFSET WHEELS, "FLOATING" BASKET, give cleaner, smoother raking; protect teeth on uneven ground.
- "ROLABAR" ACTION exposes stems to the air for quicker drying.
- BOTH GROUND WHEELS DRIVE—the "56" continues to rake on either right or left turns.
- FAST: rakes full 8 ft. swath up to 8 mph.
- LESS HAY MOVEMENT saves protein-filled leaves and blossoms; rakes at *full right angle.*
- LIGHT-TO-TIGHT WINDROWS through easy crank adjustment.
- PATENTED SPRING-LOADED JACK makes hitching up quick and easy.

HIDDEN QUALITY, TOO!

- EXCLUSIVE 100-ACRE LUBRICATION saves time.



Model 56 Rolabar Rake gently lifts and rolls mowed hay into light, fluffy windrows for fast, even curing. Saves nutrient-filled leaves and blossoms.

- SEALED TINE BAR AND REEL BEARINGS give lifetime service; need no lubrication.
- NO IDLERS, BELTS OR CHAIN LINKS to tighten or replace.
- REPLACING TINES IS EASY. Inexpensive tines may be replaced *individually;* no need to remove tine bar.

Ask your New Holland dealer to demonstrate the "56" Rolabar Rake on your own farm; check his flexible finance plan. See all the advantages of owning New Holland *quality.*

FREE BOOKLET! Write New Holland Machine Company Division of Sperry Rand Corp., New Holland, Pa.

NEW HOLLAND *"First in Grassland Farming"*

Two kinds of "lumpy jaw"

In one type, the bone is involved; in the other, only soft tissue. Iodine, X-ray, antibiotics, and surgery are used in treatment.

by E. A. Woelffer, D.V.M.

SWELLINGS on the jaws of cattle may be due to bruises, abscesses or tumors, and occasionally tissue disturbances from inflammation or dislocation of one or more of the molar teeth. In most cases, however, enlargement of the jaw is due to two infections. Both are referred to as lumpy jaw or actinomycosis.

If the bone is involved, *Actinomyces bovis* is the causative agent.

If localized in the soft tissues, the usual cause is *Actinobacillus ligniersi*, and the condition is generally referred to as actinobacillosis.

These two infections may occur separately or simultaneously.

Bone is spongy . . .

The organisms enter the bone where a disturbance is set up. This produces a granular tumor-like mass. The growth, which may be either hard or soft, often contains pus. Pus-producing germs (for example, *Corynebacterium pygenes*) may invade the area and increase suppuration (pus formation). The disease usually is chronic. Gums and mucous membranes may be swollen and inflamed. Some teeth may be involved, becoming loosened. The whole lesion may cause considerable pain to the animal. When the tongue is involved, it is called "wooden tongue."

Transmission . . .

The exact manner in which animals contract the disease is not known. It is believed that *A. bovis* exists as a contaminant on certain animal foodstuffs, such as grass, plants, grain, and so forth. However, this has not been proven. The increased incidence of the disease in cattle fed on rough forage, especially barley straw in which sharp awns are present, suggests the infection enters through open mouth-lesions.

Actinomycosis in man . . .

Primarily, cattle are affected with lumpy jaw. Horses, swine, sheep, and goats are susceptible also. Other domestic and wild animals rarely are infected. Humans, however, are susceptible.

Is the disease transmissible from animals to humans? Medical literature lists actinomycosis as being transmissible from animals to man. However, many attempts to directly transfer the infection from animals to man have always failed.

A study of 100 cases in the United States showed no evidence of transfer of the infection from animals to humans, either through milk or meat or by accidental inoculation. Since contaminated forage is a probable source of infection, humans should not suck or chew straws, grains, or weeds. A decayed tooth or an abrasion seem to aid entrance of the inoculum.

Since the lumpy jaw organism is believed to be widespread on grasses and grains, little can be done to prevent infection. Infected animals may act as passive carriers, however, spreading the fungus over plants and feeds through saliva or feces. For this reason, it is good husbandry to pasture cattle with lumpy jaw separately.

Because actinomycosis penetrates bony tissue, treatment is not always satisfactory. Actinobacillosis, however, responds more readily to treatment. Iodides, given either by mouth or intravenously, are the most common form of treatment. Iodine preparations usually are given in the form of sodium or potassium salt.

The effect of maximum dosages of these drugs (iodism) usually shows up in animals in 8 to 10 days. There will be a flow of tears, runny nose, loss of appetite, and scurvy skin. When these symtoms appear discontinue treatment for a week or so, after which it may be resumed if necessary. Some cases do not respond to iodine therapy.

Potassium iodide is secreted in milk, therefore, it is usually not given to milking cows. It also tends to reduce production. In advanced pregnancy, administer iodine cautiously; it may cause abortion.

A series of antibiotic injections as well as X-ray treatments seem to help in controlling the infection. Removal of the necrotic tissue by surgery and packing the cavity with tincture of iodine or other suitable irritants often is indicated.

It is best to consult your veterinarian regarding diagnosis and proper treatment. When there is considerable bone involvement and the lesion is discharging pus the animal should be isolated or possibly sent to market.

Pesticide drift

How far do pesticides drift? Even though a plane flies low over the ground as it releases the spray or dust, the violent and complex turbulence of its passage through the air lifts some of the material 10 to 20 feet above the level that the plane flew. The small particles then settle very slowly. How far they drift depends on particle size, height of plane, and velocity of the wind.

Big particles of dust fall fast, and the smaller particles slowly. Much of the insecticidal dust is in particles ranging around 10 microns (10/1,000 of 1 millimeter). A good aircraft spray has particles greater than 100 microns.

Consider, for example, pesticides of dust or spray dropping 10 feet in an air movement of 3 miles per hour. This small air movement is almost imperceptible. It is not enough wind to move a wind vane, but in dropping 10 feet in such an air movement, a 100-micron particle will drift 50 feet. A 10-micron particle, 1 mile, a 5-micron particle, 3½ miles, and a 1-micron particle will drift 84 miles.

—UNIVERSITY OF CALIFORNIA

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Seed legumes between corn rows

A cultipacker seeder or modified grain drill can be used for interseeding. Seed must be firmly packed into soil surface.

by Orville E. Hays

INTERSEEDING ALFALFA with an all-crop drill. Middle drill assembly was removed so 24-inch-high corn would not be damaged.

THE interseeding of legumes and grasses in wide-row corn is a promising new practice for the upper Mississippi Valley. Studies conducted at the Soil and Water Conservation Experiment Station near La Crosse, Wis., over the past seven years have shown that good stands of legumes can be established in corn. Soil losses are greatly reduced by eliminating small grain from the rotation.

Corn row spacing was found to greatly influence legume stands. In order to determine the row spacing necessary, corn was planted in 40-, 40-80-, 56-, and 60-inch row spacings. It was found that the 40-inch rows were too narrow, whether of uniform 40-inch spacing or with 40-80 combination. The 56-, 60-, and 80-inch spacing allowed good stands of legumes to be established. Observation would indicate that there was too little sunlight reaching the legume seedling in the 40-inch rows for sufficient growth for good survival of legumes over winter.

Wheel-track planting of corn, although not essential for interseeding, combines well with it. In wheel-track planting the corn is planted in the area depressed by the tractor wheel. Cultivation results in less ridging at the corn row than in conventional planting. Also, one less cultivation is necessary in wheel-track planting. A minimum of ridging is desirable in hay making.

First of all, a good weed control program is a must for successfully establishing legumes in corn. Usually, a combination of chemicals and cultivation will result in low weed population. The chemical(s) selected must be non-toxic to corn and legumes. If weeds come in after seeding it will be necessary to clip or use a chemical such as 2,4-DB. Uncontrolled weed growth has been found to kill out a good stand of legumes.

The corn height at which interseeding is made influences legume stand and corn yield. Seedings were made in corn 3, 10, 20, and 30 inches tall. The 3-inch height seeding resulted in more weeds and lower corn yield than the other seedings. In the 3-inch seeding the corn was cultivated once and in the other seedings twice.

The 30-inch-height seeding resulted in more damage to the corn leaves than the other treatments. Our experience would suggest that interseeding should be made when the corn is between 15 and 25 inches tall. The corn should receive the second cultivation a day or two before interseeding.

Pack seed firmly . . .

It is important that the legume seed be firmly packed into the surface of the soil. This can be accomplished by use of a cultipacker seeder or a modified grain drill. A mounted grain drill can be modified easily for interseeding. One drill assembly is removed, but don't plug the fertilizer and seed spouts. Let seed fall on the corn — some will become established in the row.

The packing wheels should be attached so that the banded seed is packed firmly into the soil. If drill is not equipped for bandseeding, rubber tubes can be attached easily to the grass seeder so that the seeds are laid in a band directly in front of the packing wheel.

The rate of seeding and kind and amount of fertilizer are the same as used in grain seeding.

With this procedure, good stands are being obtained even in dry years.

Yields of corn are reduced by about 15 per cent in the wide row as compared with the 40-inch row. Yields of hay after the first year are as good from interseeding establishment as from seeding in grain. The first year hay from interseeding yields about 85 per cent as much as hay after small grain.

Soil losses from a corn-hay-hay rotation are about one-fourth as much as from a corn-grain-hay.

THICK STAND between corn rows. A population of 10 to 15 plants per square foot was obtained. Soil erosion was held to a minimum.

The author is a soil scientist with the U.S. Department of Agriculture at the La Crosse Station, Wisconsin.

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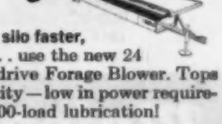

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How to keep clover in your pasture

Do not overgraze or underfeed pastures. Lime well but do not use excessive amounts of nitrogen on legume pastures.

by William D. Bishop

DO you have trouble keeping the clover in your pastures? Does the clover stay in one year or two years and then go out, or are you able to keep clovers in your pastures for several years?

A number of farmers have experienced difficulty in maintaining clover in the pasture. Most dairy farmers agree that clover is important in the mixture.

What are the factors that are responsible for the clover either staying or leaving? I am sure that you have some ideas about why this happens. Several reasons have been given by farmers and research people throughout the country.

Let's consider a few of them. Is the pasture overgrazed or underfed? Most of us recognize that pastures should be considered a very important crop in a livestock program, especially dairying. However, many pastures are overworked. Too many cows are kept on too few acres too long at a time.

Rotation grazing helps eliminate some of the damage. This is true for many farms but on some farms it may be that the pasture is not fed adequately.

What do we mean by feeding the pasture? In order to maintain clovers in a pasture the fertility of the soil must be kept in balance. Clovers are one group of plants which require a fairly high limed soil. In other words, if a soil is acid, clovers cannot compete with the grass and soon disappear from the mixture. Lime, therefore, is very important in maintaining clovers.

Some of the grasses are extremely heavy feeders of such plant nutrients as potash. In fact, most grasses can feed on the potash in the soil much more efficiently than the clover. We all know that alfalfa requires a high level of potash in order to produce good yields and to be maintained over several years. The same thing is true with most of our clover plants. If the soil does not contain amounts of potash for both the clover and grass, the grass will get the potash and the clover will go out of the mixture.

Many years ago the fertilization program for pastures included lime and phosphate. The work done during that time certainly is not out-of-date today. It is still important to maintain a high level of phosphate in order to get response from the clover as well as the grass.

Recent experimental results have pointed out the necessity of including not only lime and phosphate, but potash as well. A soil test is needed to determine amount and kind of fertilizer required.

Check growth habits . . .

Another important consideration is that of the growth habit of each of the two plants. We know that most of our grasses tend to grow upright whereas many of the clovers tend to grow closer to the ground. This makes a difference in

The author is an extension agronomist at the University of Tennessee.

GOOD PASTURES should contain 35 per cent clover and 65 per cent grass. Liming and top-dressing with 0-10-10 helps maintain clover.

the way in which the plants can be handled and maintained. For example, when grasses are grazed fairly low, new growth comes from the base of the plant. When grazed high, it may be just a continuation of growth of the leaf itself.

In the case of the clovers, most of those can be grazed fairly close without injury to the plant itself, since the new growth will come from the base of the plant near the ground. Therefore, if we are to maintain a fairly good clover grass combination it requires that the plants not be grazed too high or too low. This usually means about 3- or 4-inch growth being left on the ground most of the time.

Many of us have seen fields of clover grasses where a grass was harvested for seed and have noticed that the clover grows out much more rapidly than it would under closer grazing. Here again it is a matter of competition between the grass and the clover, not only for the plant food in the soil but also for light and moisture.

Moisture a necessity . . .

Farmers notice that where there is more moisture in the soil the clover tends to stay longer. Research work conducted at most of the experiment stations support these observations.

Irrigation studies have revealed that clovers can be maintained in the mixture much longer where there is an adequate supply of moisture.

The type of grass often determines the ease with which a farmer can maintain his clovers in the mixture. For example, it is extremely difficult to maintain good clover combinations in fescue stands, whereas farmers experience less difficulty with orchard grass, brome grass, and so forth.

Tall fescue is a much heavier feeder of potash than other grasses and much more vigorous in habit of growth. It tends to crowd out the clover plants.

Many farmers use nitrogen on their pastures with varying degrees of success.

Can you use nitrogen in addition to the phosphate and potash and maintain clover? Experimental results along this line are somewhat conflicting. In many areas of the country, small amounts of nitrogen can be used without running out the clover. Certainly the grass responds more to applied nitrogen than the clover.

Results at the University of Tennessee Experiment Station indicate that the use of 30 or 40 pounds of actual nitrogen per acre will not run out the clovers where a good clover and grass combination exists. However, our work shows that no additional increase in beef production is obtained from the use of nitrogen, where a good stand of clover is contained in the mixture.

A pasture combination of 35 per cent clover and 65 per cent grass have been found to be very satisfactory in the work conducted at the Tennessee Experiment Station. Heavy rates of nitrogen will decrease the per cent of clover in the mixture very rapidly. Clovers can be kept in a pasture mixture provided the following simple steps are followed:

1. Do not overgraze.
2. Supply sufficient amounts of phosphate and potash to maintain a soil fertility level which is needed by the clover in the mixture.
3. Do not use excessive amounts of nitrogen.
4. Lime the soils adequately before seeding.
5. Base the fertility program both at seeding and for maintenance on chemical soil tests.

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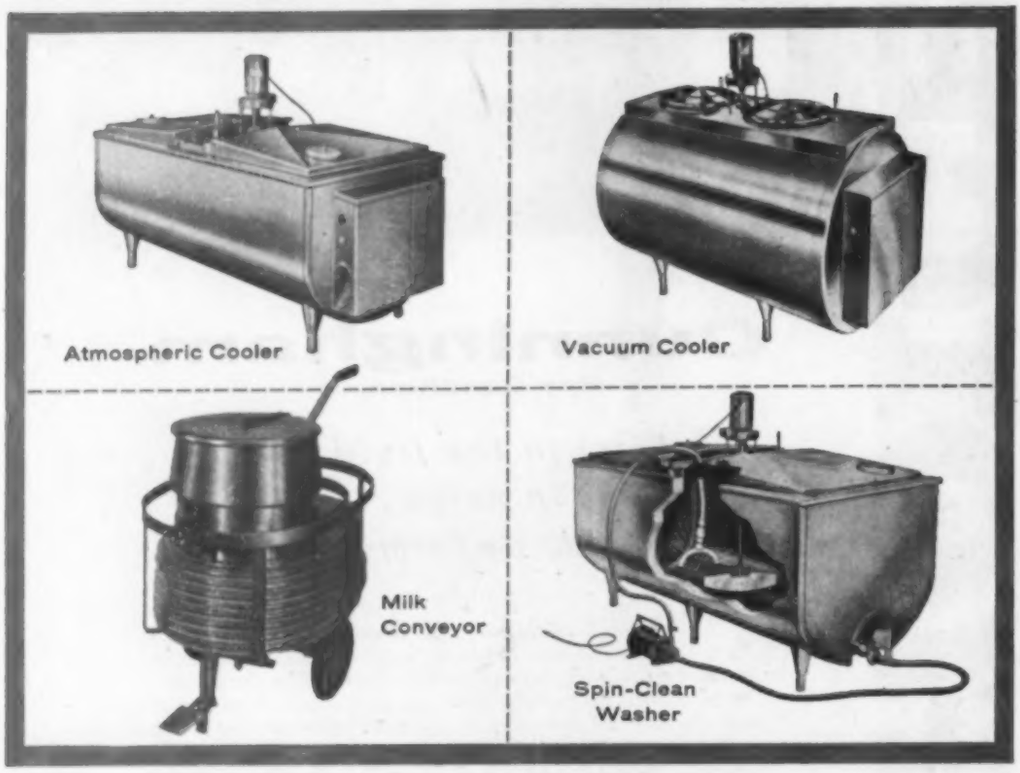

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6,000 plants lost . . .

(Continued from page 479)

at a slow speed in the lane where the kernels can be seen after the planter has passed. Or the planter can be set to drill and the lower end of the boot closed with a rag to hold the kernels for the specified distance.

Count the kernels from 2 rows for a distance of 66 feet and multiply the total for the 2 rows by 100 to obtain the number per acre. A count of 210 kernels would be correct for the calibrated rate for this case. The planter settings should be re-adjusted when the count is not correct.

Let's assume that the average hill spacing is found to be 24½ inches instead of 22½ inches. This means the population is about 19,300 instead of the 21,000 kernels per acre. An increase of 1 inch in the average kernel spacing means a drop of 2,500 kernels in the calibrated rate at this population level.

You will need to remember that the higher plate speed in the field operation and the extra wheel slippage will reduce this calibrated rate of 21,000 down to about 18,500 at 5 m.p.h. Then a loss for germination and cultivation of 12 to 15 per cent will give a stalk population at harvest of 15,700 to 16,300 per acre.

Step five. After traveling 50 to 100 feet in the field at planting speed, the rate can be checked by uncovering some of the kernels and measuring average spacing of several kernels or hills. Planting shallow for this test makes it easier to find all the kernels.

A further check can be made after the corn emerges by counting the plants in two rows for the 66-foot distance. For 36-inch rows, use 72 feet. As mentioned before, the number of plants counted times 100 gives the number per acre. If the population is a little too high, a few more than the normal number may be removed during some of the cultivation operations. **THE END**

Kill quack grass

Atrazine has just recently been granted label approval for spring pre-plant treatment for quack grass control. The label prescribes that atrazine be applied at 2 pounds per acre in spring as soon as frost is out of ground to be followed by an additional 2 pounds per acre applied pre-emergence. The split application can be expected to give excellent control of both quack grass and annual weeds. However, it is suggested that corn be grown two years in succession to avoid the risk of crop injury, particularly where oats is concerned.

The advantages favoring split applications of atrazine, over and above those already mentioned, are (1) no hazard to corn, (2) dependability, and (3) the treated area may remain relatively quack-free for several years. The disadvantages are (1) corn must be planted two years in succession, and (2) high out-of-pocket cost.

It is not absolutely necessary that atrazine be applied pre-emergence since good to excellent control can be expected from the pre-plant treatment alone. In addition to giving annual weed control, however, the pre-emergence application would "finish off" weakened quack that may have survived the pre-plant treatment.

—Don Peterson
University of Wisconsin

Corn or sorghum?

Tests show new hybrid sorghum silage can challenge corn on total yields and milk production.

by H. D. Nosker

NEW hybrid sorghums are challenging corn as a source of silage for dairy cattle. Recent University of Illinois feeding trials with dairy cows show nearly identical energy values for corn and hybrid sorghum silage.

The tests indicate the yielding power of sorghums will determine whether they can profitably replace corn silage in the dairy ration, according to University of Illinois dairy specialists K. A. Kendall and J. H. Byers.

In a 60-day feeding trial, cows receiving corn silage produced 35 pounds of milk and ate 56 pounds of silage daily. Sorghum-fed cows produced 35 pounds of milk per day on 52 pounds of silage.

Fat tests converted to 4 per cent butterfat showed 34.57 pounds of fat corrected milk for cows on corn silage and 33.98 pounds for those getting sorghum silage.

Both groups received 1 pound alfalfa hay per 100 pounds body weight, and each received a 15 per cent total protein grain mixture.

Yields are the key . . .

The hybrid sorghums in the Illinois tests yielded 28 tons of forage per acre. The corn yields varied from 15 to 20 tons per acre.

Since energy values were almost identical, higher per-acre yield of hybrid sorghums gave them a feeding advantage over corn silage.

The same situation will apply on the farm, Kendall explains. If the dairyman can get sorghums to outyield corn, it would probably pay to grow sorghum silage.

It's mainly a matter of land use, he explains.

For example, hybrid sorghums would be especially advantageous when the dairyman expects a dry season or has certain fields which are often dry.

Sorghums are more drought resistant than corn and would probably produce higher yields under these conditions.

Usually the yields won't have to be much higher to make sorghums pay off as a feed, Kendall explains.

Tests with heifers . . .

High-yielding sorghums also can pay as a feed for dairy heifers, even though recent tests indicate heifers make faster and more efficient gains on corn silage than on sorghum silage.

In a 24-week study, heifers fed corn silage made average daily gains of 1.65 pounds compared with 1.40 pounds on sorghum.

Although the sorghum-fed heifers ate 6½ more pounds of silage a day, total dry matter intake for the two forages was about equal—averaging 8.99 pounds a day for sorghum and 8.95 pounds for corn.

The heifers also made more efficient use of corn silage. On the average, the corn silage group consumed 6.42 pounds of dry matter for each pound of gain, and the sorghum silage group consumed 8.51 pounds. Grain consumption was the same for the two groups.

Byers says one thing that may have influenced the dairy heifer study is the fact that the heifers didn't receive any hay.

Recent Illinois tests indicate dairy cattle on corn or sorghum silage also should receive at least 1 pound of hay per 100 pounds of body weight.

Byers cites research which boosted milk production of 10,000- to 12,000-pound producers by as much as 1,600 pounds of milk per lactation. It was done by adding 1 pound of alfalfa hay per 100 pounds of body weight to a corn silage ground shelled-corn ration.

These tests also showed that feeding less than 1 pound of hay per 100 pounds of body weight can cause digestion trouble in the cows.

Used hybrid sorghums . . .

The dairy specialists point out the sorghum fed in these tests was a new early-maturing hybrid forage variety noted for its grain-yielding power.

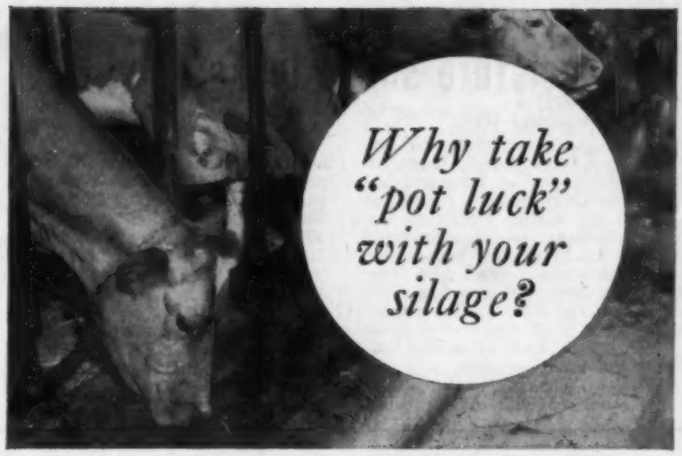
The sorghums were planted the first week in June and put up as silage in the middle of September. This means they matured about two weeks earlier than some conventional sorghums.

To increase yields, researchers planted the sorghum seed only three inches apart in the row. This close planting promoted suckering and boosted sorghum yields to the 28-ton-per-acre level.

Old weed seeds still germinate

Back in the late 1800's, botany professor W. J. Beal of Michigan State University, buried seeds of 20 species of weeds to begin what is reported as the oldest buried weed seed experiment in the world.

Three species of these seeds were dug up last spring and tested to see if they would germinate. They did. Although only three varieties of these old weeds still germinate, the life expectancy of one of them, moth mullein, indicates that the seeds will very likely be alive for over a century.



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(Continued from page 478)

body weight, although those on stored feed had an 8.8-pound advantage. Gain for 100 pounds of forage dry matter consumed was 2.7 pounds in the cows receiving stored feed and 2.1 pounds for cows on green-chopped feed. This means cows fed stored forage needed .8 acre per cow for the season, compared to .9 acre for cows on green forage. Lack of rainfall limited the milk per acre.

For two summers, sealed alfalfa was compared with green-chopped alfalfa in tests involving 76 heifers. In 1958, 40 heifers averaging 16.5 months and weighing 780 pounds were divided into four groups. In 1959, the heifers were divided into large and small heifers. All were group fed.

Each year two of the groups were fed 4 pounds of grain daily per heifer, using a mixture of half corn and half oats. The dry matter consumed and the average daily gains of the heifers are shown in the table:

Rations	Dry matter per heifer daily (lbs.)	Average daily gains (lbs.)
(1958 Trial 4)		
Sealed alfalfa, no grain	21.7	1.92
Green chop, no grain	17.9	1.49
Sealed alfalfa, 4 lbs. grain	23.5	2.43
Green chop, 4 lbs. grain	20.3	1.92
(1959 Trial 5)		
Sealed alfalfa, no grain (large heifers)	24.4	2.23
Green chop, no grain (large heifers)	19.7	1.83
Sealed alfalfa, 4 lbs. grain (small heifers)	19.2	1.96
Green chop, 4 lbs. grain (small heifers)	16.1	1.85

At the start, the large heifers in trial 5 averaged 957 pounds body weight. Before going on trial, they had been fed poor rain-damaged hay stacked outdoors and poor-quality corn silage preserved in a temporary silo. The small heifers averaged 572 pounds and had been on excellent rations of high-quality alfalfa hay and a well-balanced concentrate mixture.

Both years there was a rather uniform tendency for the heifers fed sealed alfalfa to gain the most weight and to consume the most dry matter daily. The sealed alfalfa appeared very palatable and had a pleasant aroma. The amount heifers ate was much more uniform from week to week than the green-chopped alfalfa, which varied according to stages of growth.

During 1958, the average weekly variation per group in dry matter consumed was 80 pounds for the heifers fed sealed alfalfa and no grain, 81 pounds with sealed alfalfa plus grain, 96 pounds with green chop plus grain, and 116 pounds with green chop and no grain.

Consumption variations followed the same trend during 1959. In other words, consumption was more uniform from the haylage. It appears the consistent quality of the sealed alfalfa made at bud stage of growth is an important factor.

Grain reduced bloat . . .

Bloat was somewhat of a problem in 1958, although there was no bloat in animals fed sealed alfalfa. The most severe bloat occurred in the heifers fed green-chopped alfalfa with no grain. In this group one heifer died and several others had severe bloat.

Grain feeding appeared to reduce bloat. Steamed bone meal (as a source of minerals) had no apparent effect on bloat when fed on the green-chopped alfalfa.

Many samples were taken for complete chemical analyses and carotene. In all of the trials, the sealed alfalfa averaged 4.2 per cent ether extract on the dry basis, similar to green chop. It averaged 23 per cent in crude fiber. This low fiber may be very important, especially as it is related to low lignin or "woodiness." It is especially important where the whole plant is consumed. In feeding hay, where some of the stems can be thrown out for bedding, this lignin content might not be quite as important.

The sealed alfalfa contained 21 per cent protein, similar to good pasture grass, on the dry basis; 16.4 per cent protein on the "as baled" hay basis. Comparatively, the protein quality and quantity may be **similar to the highest quality dehydrated alfalfa meal!**

The alfalfa averaged 18 inches tall when cut. It was very leafy and fine-stemmed, as is characteristic of alfalfa grown in our area. The sealed alfalfa averaged 42.6 per cent nitrogen-free extract (dry basis), which is relatively good. It developed a mild acidity, less strongly acid than is commonly present in good corn silage, with an average pH of 4.9 to 5.0.

One-third to one-half of the original carotene (pro-vitamin A) of the alfalfa was retained in the sealed alfalfa from cutting to feeding time. The artificially-dried hay retained about one-fourth of its original carotene. Rained-on hay often will have almost none to one-tenth of its original carotene. Vitamin A is destroyed by air and light during storage. Sealed alfalfa is not subject to so much de-

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composition because of the lack of light and oxygen. Also, it should be higher in vitamin D than green alfalfa because it is wilted well in the sunlight.

Weight losses varied . . .

The alfalfa in sealed storage was weighed when it went in and when it came out of the sealed units. In two trials the loss in weight was between 1 and 2 per cent. During a third trial, the top door was left open for the first three days. This permitted the carbon dioxide to escape. The resulting total loss was 6.6 per cent.

Small sealed drums, containing 200 pounds alfalfa silage and haylage had weight losses of 3 to 4 per cent during storage. Various preservatives, including cultures, enzymes and nutrients had little effect on preservation losses as long as the units were sealed. When not sealed, they sometimes spoiled completely. Air tightness seemed to be the important factor in keeping losses low.

The best preservation of alfalfa in upright silos resulted in 9.7 per cent loss. When incompletely sealed, bunker silo losses amounted to 30 to 37 per cent. Adding corn grain made more spoilage, perhaps because more oxidizable or "burnable" material was present. Crude fiber increased from 3 to 6 per cent of the total silage in bunkers.

Nitrogen-free extract decreased from 3 to more than 7 per cent of the total silage in unsealed bunkers. This means that nearly half of the nitrogen-free extract (sugars, starch, hemicellulose) disappeared in the bunkers between ensiling and feeding.

This partly explains the poor results when animals are fed poorly-preserved alfalfa silage in bunkers. It also explains (along with greater dry matter consumption) the tendency of animals to gain relatively more weight when fed the sealed alfalfa.

Is sealing necessary?

Some observations indicate that alfalfa can be successfully stored in upright silos at lower moisture content than is commonly practiced. The silos need to be as airtight as possible and sealed with plastic around the doors.

The plastic cover on top needs to be **tight** and weighted down on **all** of its surface. People sometimes do not realize the need for **airtightness** of plastic covers. On numerous farms, one sees evidence of wind blowing under the covers. Such covers may be useless or even detrimental.

The silo should be of such a diameter and enough animals fed so a good depth can be fed each day. A silo unloader is desirable for even unloading.

Controlling moisture levels appears to be of extreme importance in low-moisture silage. Sometimes whole silos of low-moisture ensilage become charred or "burned" because the air and low moisture result in oxidation. Possibly adding carbon dioxide such as dry ice would help such silage, as carbon dioxide would replace oxygen.

Many of the answers to questions about silage preservation, especially low-moisture preservation, are not yet fully explainable and require much additional research. **THE END**

The little girl was entertaining visitors until her mother was ready. One of the ladies remarked to the other with a significant look, "Not very p-r-e-t-t-y," spelling out the word.

"No," answered the child, "but awfully s-m-a-r-t."

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There's a new, effective way to build up dry cows and dairy heifers for top production and profit performance in their next lactation. Self-feed MoorMan's Mintrate Blocks.

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Cows on Mintrate Blocks clean better and breed back sooner, according to reports from MoorMan feeders. There's increased milk flow, too, for faster calf growth. When mothers have had access to Blocks, their calves often weigh up to 100 pounds more at weaning time.

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Return over feed cost, $378.44 per cow on Mintrate

"Feeding MoorMan's brings my cows up to production and keeps them there all during lactation," says Francis J. Beldt, Stephenson County, Illinois.

"With Mintrates*, my production holds up. I've found, too, that in 10 years I've fed MoorMan's, my herd's butterfat production has increased steadily.

Keeps cows in better condition

"Mintrates also help to keep my cows in better condition. Since feeding MoorMan's, breeding problems have been reduced and cows seem to clean better.

"During my last testing year, my average return over feed cost for 51 cows was $378.44 per cow, according to DHIA records. These cows averaged 13,943 pounds of milk and 547 pounds of butterfat per cow. Their test averaged 3.8."

$1.19 feed cost per cwt. of milk

Mr. Beldt's total feed cost to produce 100 pounds of milk was $1.19. This included cost of grain, hay and silage, and out-of-pocket cost for Dairy Cow Mintrate.

You too can get outstanding results with MoorMan's Mintrate. Its powerful blend of proteins, minerals, and vitamins stimulates greater rumen activity, helps cows get more milk-producing energy from home-grown grain and forage to reduce production costs, increase dairy profits.

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—Photo courtesy Masonite Corporation

FOR A YOUNG BOY with Wild West interests, a bunkhouse setting would be sturdy and practical. The rugged-looking walls are of easy-to-apply paneling with embossed wood-grain texture. The bunk beds allow space for built-in desk, storage cabinets, and overnight guests.

—Photo courtesy Dixie Furniture Company

FOR A TEEN-AGE GIRL, here is a light and frilly bedroom with French Provincial furniture in a white and grey finish, a canopy bed to make her feel like a princess, and a corner desk near the window for her homework and also to serve as a dressing table for primping.

How to decorate children's rooms

Boys and girls alike will delight in bright and cheerful rooms of their own where they can play or study.

by Ann Joselyn

TOO often a child's room serves as a catch-all for cast-off furnishings because parents mistakenly believe that youngsters "don't notice things."

However, it is widely recognized that a child's surroundings play a big part in forming his living habits. When a child's room is attractively furnished it develops a sense of responsibility and fosters the appreciation and pride of possessions that are invaluable later.

Furnishings need not be expensive. Even if the budget doesn't allow for major changes, color is inexpensive and can be applied to walls, old furniture, even floors, to create a cheerful room for a child.

Fabrics such as denims and corduroys are colorful, sturdy, and inexpensive. Unbleached muslin takes on a glamour look quickly when bordered with colorful fringe or other trim.

Both boys and girls need a place for reading or study, a place to display hobbies or collections, and storage for toys and books. These should be considered even when planning a nursery for a baby.

Planning a child's room . . .

A baby is bound to grow. So when you buy furniture, select pieces that will adapt easily to the child's growing needs and that will survive the rigors of childhood. Bedspreads, curtains, and accessories can be easily changed as children grow.

If you're using old furniture, give it a fresh look with paint. Children love bright colors. Try painting the drawers of a chest in several different colors. This is gay and colorful and also serves as a good way to train the child to put his shirts in the red drawer, his socks in the blue one, and so on.

Built-in cabinets and desks can often be utilized effectively in a child's room. For plans and ideas which can be adapted to individual needs, you might check with your local lumber dealer. Also, note the bunkhouse bedroom shown in the photograph. Plans are available; see box.

If built-ins are not feasible, it is often possible to use desks, bookcases, and cabinets either in unfinished or finished furniture to achieve the effect of built-ins. These can be placed side by side along a wall as space permits.

NOTE: A plan which gives remodeling specifications for the bunkhouse bedroom shown in the photograph is available free of charge. Write Home Department, Hoard's Dairyman, Fort Atkinson, Wisconsin and ask for bunkhouse bedroom plan AE-334.

If the room is small, bunk beds save space and allow use of a needed desk or chest. In some rooms, two single beds placed in a corner arrangement allow space in the center of the room for a play area.

Where both a boy and girl must share a room, it may be possible to divide the room in the center with a folding door or bamboo draw draperies or a partial divide made of one of the decorative hardboards.

Things to remember . . .

All children like to collect things, so give them a place to display their prizes. Use bookshelves or a pin-up wall where things can be hung. Cork, perforated hardboard, and acoustical tile boards all make good pin-up backgrounds.

The impulse to draw is common to every child. Give it play, but safeguard your walls and woodwork by providing a low drawing board of slate at a height little fingers can reach. Then, hang it higher as the child grows.

Chalk boards for scribbling can be easily made with a sheet of hardboard that is painted with a special chalk board paint.

A low table with small chair serves many purposes in a young child's room. The surface provides space for tea parties with the dolls, or a place to splash about with finger paints. Here, again, an old piece of furniture could be put to good use. An old kitchen or dining room table with the legs sawed off to the proper height easily becomes a play table. Give it a new look with a coating of bright paint and add giddy designs around the sides or apron.

When children reach the 10th year, they often have their own opinions on favorite colors and accessories. Let them join you in planning their rooms. If they have a part in the planning, they will take better care of their possessions.

In decorating the room a child's interests can provide a motif or theme, such as ships, cowboys, trains, flowers, or butterflies. This can be accomplished with accessories, fabrics, and wallpaper designs.

For the teen-ager . . .

A teen-ager's room is a very special place so it requires special planning. Growing girls adore a bedroom-sitting room. Often the bed can double as a sofa when it is placed against the wall rather than out from it. Colorful pillows and bolsters placed on top make the bed comfortable to sit on.

Growing boys require a place of privacy and room for a multitude of hobbies and interests. Beiges, browns, or most bold colors will appeal to the masculine taste more than the dainty colors preferred by girls. And no frills, please. Tailored spreads and curtains are best for boys.

In addition to the advantages mentioned before, if a child can be proud of his or her room and there's a place for everything, neatness will come more naturally. That's something all mothers would welcome. **THE END**

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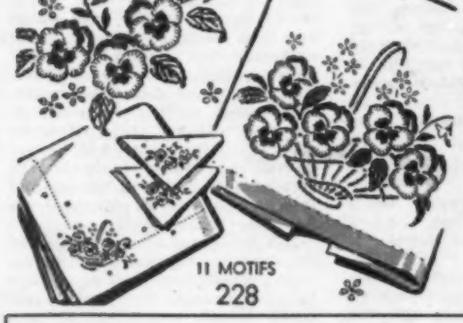

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From Day to Day

by Lois J. Hurley

AGAIN we're around to the delightful month of May, when grass grows, flowers bloom, birds sing, and I have another birthday. I hope none of you remembers how many years ago I wrote the column on the subject of becoming 50 years old. Or, does it matter? Time will march on, whether we watch it, or not.

May brings Mothers' Day, too; always the same weekend as my birthday so that I can't sort out one gift from another. I think most of you know my thoughts and attitudes on Mothers' Day, anyway; that it's a too-maudlin, too-commercialized, too off-hand day that often falls far short of what it really should be.

The gifts that mean the most often are not purchased over store counters. One of the nicest I shall receive this year is my daughter's dedication of her career book.

In ninth grade, each student must prepare career books on the vocation he or she hopes to pursue. Almost all of the girls, of course, hope to become wives and homemakers and mothers, but they still must make three vocational choices to help their counselors guide them in their curriculum choices for the next three high school years. Kathy chose journalism first, advertising second, and home economics third.

Major time and emphasis was spent on her first choice, naturally, and her career book on journalism required a dedication. Here is what she wrote:

"To my mother (My inspiration and help.)

"I am writing this career book as the beginning of a great, big, wonderful dream. It is my hopeful ambition to become a successful person in the journalism field.

"I acquired this ambition from my mother, I suppose, for she is successful in this field. But I feel that it is not just because of 'hero worship' that I want to pursue this career. This idea of mine has weathered all the childish day dreams of glamorous occupations, and comes out as a full-fledged ambition. I write this to start the beginning of the realization of my dreams."

Could I have a nicer birthday-Mother's Day gift than that? I don't think so and I feel humble and apologetic to her. The accolade of success that she gives me is hardly deserved; I could have done so much more. I hope my own lacks can be made up in opportunities afforded her to train herself in this field so that she may find her "great, big, wonderful dream" coming true.

Bless all daughters; I think every mother should feel proud and privileged to have the sweetness and delight of a young girl close in her life. I know that boys are just as nice and I carry, deep in me, constant regret for my little lost son, but since I have no really personal contact with a growing-up boy, I speak with more enthusiasm for daughters.

Allow for shrinkage . . .

Blue jeans and T-shirts are universal costume for American boys and lots of girls; parents put out a sizeable money investment in them, yearly. Fading and shrinking can play havoc with fit and performance; here are some buying recommendations.

Buy blue jeans big enough to allow for a little shrinkage, even if they are labeled "sanforized", textile chemists recommend.

In tests, heavy and lighter weight blue jeans shrunk some and faded at about the same rate. Knees of the jeans give out first. T-shirts of cotton, cotton-orlon, flannel, and gingham were tested. Cotton shrunk most on first washing and continued for about 10 washings. Flannel shrunk considerably, too; the orlon-cotton combinations were much stronger. All faded with regular washings.

Of course, the use of a clothes dryer will shrink such garments as much as a size, so make extra generous allowances if you use a dryer regularly. Fading of blue jeans is not considered important in the teen-age set, as most mothers know; they strive for that faded look.

And as for shrinkage, I can't think that bothers Sis and Bud very much, judging from some of the sights I see.

Probably the fad is harmless; I remember the horrible knickers I used to wear on outings. Each generation brings along a new set of customs that means much to them and at which oldsters hold up horrified hands. It has always been so; so will it probably ever be.

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Cleaning tips . . .

Here are a couple of suggestions that may be helpful at house-cleaning time. Use a cream wax polish on appliances with baked and porcelain enamel finishes. These include refrigerators, freezers, ranges, washers, dryers, and so forth. Rub the cream wax on with a damp cloth and remove the excess with a dry, clean cloth before polish dries. A thin coat protects surface.

If you wish to remove old wax from furniture, a cleaning-polishing or cream wax should take off most of it, unless a very heavy coat has built up.

If the coat of wax is too heavy to remove with a cleaner-polisher type, try rubbing with a turpentine-dampened cloth, a light suds made with a mild soap, or a mixture of three tablespoons raw linseed oil and a tablespoon of turpentine in a quart of hot water.

If any water solution is used, rinse and wipe dry immediately, re-wax lightly, and polish with a soft cloth.

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Don't grow weeds . . . grow corn

Tillage is no longer the only way to control weeds in corn. Herbicides have their place. Here is how to use atrazine, 2,4-D, and Randox-T.

by K. P. Buchholtz

WEED JUNGLE produces nubbin ears. From 2 to 3 pounds atrazine in a 12-inch band at planting time would have prevented infestation.

THE cost of controlling weeds continues to be one of the high fixed charges in farm operations. Reduced corn yields, caused by excessive weedy growth, also reduces profits.

Methods of controlling weeds in corn are changing. The cultivator is no longer the only implement used. Instead, various combinations of tillage, cropping practices, and herbicide application have been developed.

A production practice that aids control of weeds is use of a planting rate that will provide up to about 18,000 plants per acre. Use of sufficient fertilizer to produce 100 bushels or more of corn per acre also reduces weed competition. These two practices reduce the time required for the corn to shade the soil. After the soil is shaded, weed growth is not likely to be of much importance.

Herbicide applications alone may not give complete control of weeds but they are worth considering on every farm where corn is grown. Proper applications of a herbicide as a supplement to tillage will be more effective than tillage alone. Herbicide applications may be more convenient, may provide wet weather insurance, and may be more economical in the long run.

Herbicides vary in their effectiveness against different weed problems. Soils, weather, and application methods are known to influence results. Therefore, the choice of the combination of tillage and herbicide application used should be considered carefully to secure the most favorable response.

Atrazine use will increase . . .

Atrazine has proved to be one of the most useful herbicides available for the control of all broadleaved and annual grassy weeds in corn. To some extent, atrazine has replaced simazine for use in corn for it does not require as much rain before the material becomes effective. However, even atrazine will not be fully effective if the chemical is applied to dry soil and no rain falls for several weeks. An ideal arrangement would be ½ inch of rain within a week of treatment. Heavy or repeated showers increase the kill of weeds, so good protection is provided in wet seasons.

If atrazine is used in a dry season, weeds that germinate deep in the soil may escape. This sometimes happens with velvet leaf or button weed. If the control of other weeds is good in the field, velvet leaf can be eliminated by applying 2,4-D at the rate of ½ pound per acre as an over-all spray when the weeds and the corn are only a few inches tall.

If the surface soil has remained very dry, both grassy and broadleaved weeds may come up. In this case, use of a rotary hoe while the weeds are less than 1 inch tall will clean up the field. The atrazine will remain on the soil surface to control weeds later when rain does come.

Rates of applying atrazine must be adjusted according to the soil texture on the field being treated.

In general, sandy soils require less material than do heavier soils. In some cases, application of 1 pound per acre of atrazine as the active ingredient, using an over-all treatment, may be sufficient.

In most mineral upland soils, applications of from 2 to 3 pounds per acre will give best results.

These rates may have to be increased when the material is used on lowland soils and soils high in organic matter. Local experience will be the best guide to follow after atrazine has been used a year or two.

Because of the cost factor, atrazine will probably be used as a band treatment at first. Bands should be at least 12 inches wide and care should be taken to make sure that the adjustment of the nozzle height allows a band of this width to be treated. When bands are treated, control of weeds in the row will be good, but probably two cultivations will be required to control weeds in the middle of the row. It is essential that these weeds be cultivated before they become soddy.

If a broadcast treatment is used, the need for cultivation will be reduced or eliminated. It is possible to apply atrazine at rates that will control weeds completely all season long. A more practical treatment is to use a moderate application of atrazine that will control weeds for about two months and to cultivate the field once when the corn is about knee high. This cultivation will take care of scattered perennial weeds and the annual weeds that may have escaped the treatment.

Atrazine is available in both wet-

The author is professor of agronomy, University of Wisconsin.

table powder and granular preparations. The material cost for the wettable powder will be less than for the granular, and in most instances a more uniform distribution of the chemical will be obtained when the wettable powder is applied as a spray.

On the other hand, use of granular preparations has the feature of greater convenience. Generally, granular applicators are useful only for pre-emergence treatments in field crops. If a broadcast application is desired, the material must be applied as a spray, for very little broadcast granular application equipment is available.

There is no danger of injuring corn with atrazine even though excessive rates might be used by mistake. Atrazine cannot be used for control of weeds in any other farm crop because they are all sensitive to the chemical and will be injured or killed.

The fact that other farm crops are sensitive to atrazine makes it important that no more than the recommended amounts be used. If excessive rates are used the residue of the chemical in the soil may injure sensitive crops sown the next year.

Oats is probably the crop most sensitive to residue of atrazine in soil. Other cereal grains, soybeans and peas, are also sensitive.

The most usual evidence of injury is spots in the field where the sprayer was stopped, strips where the boom was lapped at time of treatment, and corners where the sprayer was slowed down in turning.

In areas where cover crops are planted in the corn or in corn stubble in the fall the residue will be a problem. Where planting of other crops in the rotation is delayed until the next season, no injury is likely, when recommended rates of application are used.

2,4-D is economical . . .

In previous years, 2,4-D has been useful as a pre-emergence application for the control of weeds in corn. The main advantage from using 2,4-D is its low cost per acre for material. Therefore, it may be used more widely as a broadcast treatment than as a band treatment. Being most effective on broad-leaved annual weeds, 2,4-D often gives little or no control of annual grasses. As with atrazine, control will be poorer when rainfall is scanty.

Application rates with 2,4-D vary from 1½ to 2 pounds per acre with the lower rates being used on soils of lighter texture. The ester preparation is preferred here.

When using 2,4-D the corn should always be planted quite deep and should be covered well. This reduces the possibility of 2,4-D injuring corn while it is germinating.

When 2,4-D is used, the period of residual weed control is only about four weeks. This should eliminate the need for the first cultivation, if a broadcast treatment has been made. However, two cultivations probably will be required to completely control weeds during the season. Since 2,4-D lasts for only a few weeks in the soil, there is no hazard connected with planting crops other than corn the following year or even during the fall months.

Randox-T good for grass . . .

Randox-T is particularly good for the control of grassy annual weeds. Control of broadleaved weeds will not be complete, but those that escape can be controlled with 2,4-D applied as a broadcast treatment when the weeds and the corn are only a few inches tall.

Some rainfall is necessary following the use of Randox-T, but this material appears to be less affected by dry weather than 2,4-D or atrazine. On the other hand, the period of effective control is sharply reduced when rainfall is excessive. The period of control with Randox-T appears to be about four to six weeks. After that cultivation must be used to control weeds.

Spray for broadleaved weeds . . .

A second method of controlling weeds in corn involves post-emergence applications made after the crop and the weeds have emerged from the soil. The preferred treatment in many areas has been ½ pound of 2,4-D per acre applied as an over-all spray when the corn is from four to eight inches tall. This will give good control of broadleaved weeds but does not control the grasses.

Little or no chance of injury to the corn results from proper applications made at this time. Normally, this treatment must be combined with two cultivations to control other weeds in the field.

If broadleaved weeds are a problem in larger corn, applications of 2,4-D can be made using drop nozzles. In this case, the nozzles are adjusted to cover weeds in the row and only the lower leaves and stalk of the corn plant.

This treatment works out best when the corn is 18 inches tall, or more. The 2,4-D used should be mixed as if a ¼-pound-per-acre application were to be made. The double applications, from nozzles on each side of the row, result in about ½ pound per acre being applied in the row.

Corn should be treated cautiously with 2,4-D following or during periods of hot weather when growth of the corn is rapid. Under such conditions, the stalks may bend after treatment and in extreme cases may even break off.

Costs for material when using 2,4-D as an over-all or drop-nozzle spray are low. Consequently, this treatment is worth using whenever broadleaved weeds are present in the corn field and cannot be cleaned up by tillage alone.

A new possibility for post-emergence treatment in corn is the application of atrazine as a spray using a wettable powder preparation. This particular treatment must be applied within three weeks of planting time while the weeds are still very small.

Applications of 2 pounds per acre as an over-all or band spray appear promising. Control of broadleaved weeds is generally good but annual grasses may persist.

If control of the weeds that are up is obtained, the residual atrazine applied to the surface of the soil will control weed growth for many weeks.

The exact procedure selected to control weeds in corn depends on many factors. The kinds of weeds on the farm must be considered. The size of the area to be treated, the soil type on the farm, and the weather expected during the critical two or three weeks following corn planting must be kept in mind. In some instances the cropping rotation must be reviewed.

As a result of these variables, many combinations of chemical application and tillage treatments will be used. After considering the possibilities, select the combination that will be most effective and most practical for you to use. Then grow corn, not weeds.

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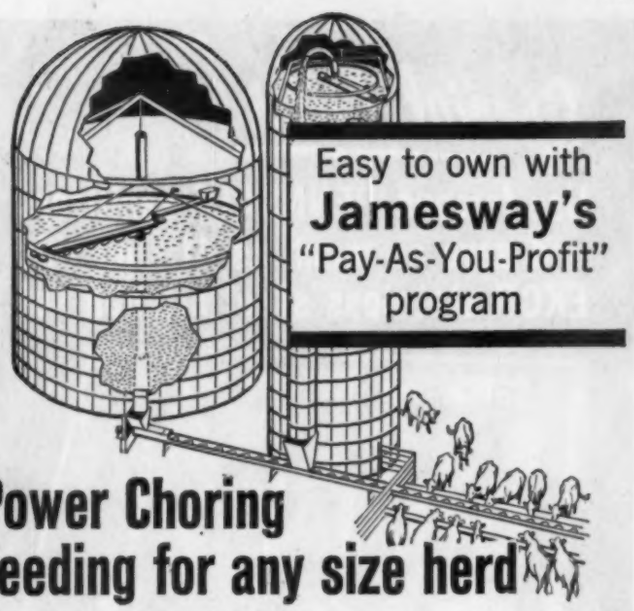

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No. Surge Units

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"Bunching" hay slows up drying

In humid regions, we have to depend mostly on direct sunshine on each stem and leaf to field-cure hay.

by H. D. Bruhn

PERIODICALLY someone comes up with the suggestion that we should all cure hay in a windrow instead of a mower swath. The advantages claimed are always the same—better quality with drying at about the same rate.

Just remember . . . bunching hay slows up the drying. This holds true for any practice, regardless of whether the hay is raked from the swath to a windrow by any size, shape, or type of rake yet devised, or whether the grass is brought together by a device trailing a mower bar, or whether a forage crusher may be part of a windrowing device.

In fact, research workers have gone so far as to arrange windrows by hand in order to get particular stem arrangement to increase drying rate. Even such windrows have dried more slowly than alfalfa in the swath.

Fundamentally, the answer is simple. To cure hay we have to evaporate water. It takes heat to do this and the heat comes from the sun.

The heat absorbed from the sun evaporates the moisture from the grass on top of the swath or windrow, and as the top gets dry, it acts as a shade and insulator. Drying slows down, and more heat is reflected back to the air. Most of this is lost so far as drying hay is concerned.

If the grass is in a windrow, the layer which dries on top is a smaller percentage of all the hay, and the sun that strikes the ground between the windrows either goes to dry out the ground or is reflected back to the air above. The more the grass is raked together, the slower the drying.

On the other hand, if the ground is almost completely covered by a swath, the sun shining on the field strikes grass rather than bare ground. The layer of hay to cure is thinner and a higher percentage of the hay cures faster in the swath than it would have in a windrow.

Where do these notions come from that hay can be raked into a windrow and cured at even a reasonable rate?

Good practice in dry areas . . .

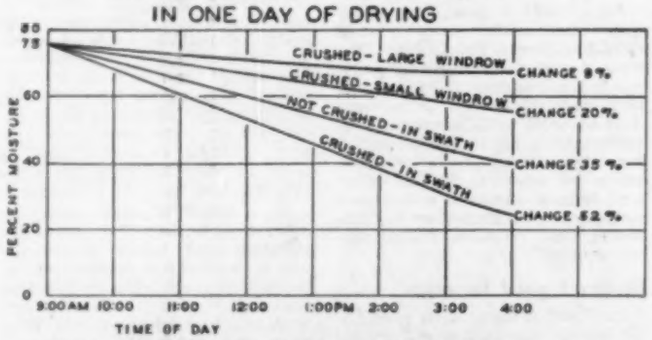
In the more arid Southwest, alfalfa may be considerably lower in moisture at the time of cutting than it is in the Lake States. A slowing up of the drying rate might be desirable to prevent shattering. This is done by early raking into a windrow and results in better hay.

In an irrigated area, an alfalfa field may be the only green field in an otherwise dried-up section. Under these conditions, all the dry area is being warmed by the sun. This heat is picked up by the air and the very dry air blowing across a windrow gives a good drying rate. Not only is the sun on the field utilized but that from surrounding dry fields as well. Since the alfalfa is a little drier to start with and possibly a little stiffer-stemmed, it dries fairly well in a windrow.

It may be possible once in awhile in the Lake States to get a fair drying rate in a windrow under certain combinations of conditions. For instance, a rather over-mature, second-crop alfalfa on fairly dry ground and downwind from a harvested grain field might dry pretty well. The breeze crossing the dry stubble could be warmed, the ground between and under the windrow would be dry, and the stiff stems of the over-mature alfalfa would not contain much moisture to begin with. Consequently, it

The author is a professor of agricultural engineering, University of Wisconsin.

CHANGE IN MOISTURE CONTENT IN ONE DAY OF DRYING



DRYING RATE to be expected from early-cut alfalfa on good drying day with average soil moisture conditions. Alfalfa crushed and then the two 7-foot swaths immediately rolled into a windrow only changed by 9 per cent in moisture content in one day. When only one 7-foot swath was rolled into windrow, the change in moisture content was 20 per cent. Uncrushed material in swath dried faster than either windrow. Crushed alfalfa in swath dried the fastest with a change of 52 per cent and it was ready for storage by end of day.

would make a fluffy windrow and the air could easily pass through. Such a windrow would cure well.

But, if you windrow a good, heavy, first-crop alfalfa, cut when it should be, and lying on damp ground with all the countryside around green and pumping water into the atmosphere, it will take days and days to cure with an ever-increasing chance of a soaking rain before curing is completed.

As far as crushers with windrower attachments or combinations are concerned, the situation is this:

Immediate windrowing slows up the drying about as much as crushing speeds it up. So, crushing and windrowing immediately after cutting are about as effective as a good, old-fashioned mower all by itself. The crusher-windrow procedure may save a little sun bleaching, that's all.

In the less humid areas, those machines or combinations are fine, but they are very impractical in the Lake States region.

If we want to get consistent fast-curing rates in this humid region, we should mow, crush as soon as practical, and rake when the top of the swath gets dry enough to make a fluffy windrow.

If you are not satisfied with the drying rate after the first crushing, wait about half an hour and crush a second time.

Don't delay the second crushing too long or a lot of the leaves may get clipped off and lost.

Usually, double crushing will give a good increase in drying rate, but you have to be careful not to get too much leaf loss.

Remember, in the humid region we have to depend mostly on direct sunshine to field-cure hay. Therefore, the more nearly we can approach having the sun shine directly on each stem and leaf without knocking off a lot of leaves, the faster hay will cure and the better will be its quality.

West to Chicago

Ray West, the northeast regional membership director for the American Dairy Association since 1959, became assistant membership director of the American Dairy Association on April 1. He succeeds O. O. Saunders, who resigned to become manager of the Oklahoma State Fair.

In his new position, West will assist state units in building set-aside financial support among dairy farmers and will be working with the national membership director, Myron W. Clark.

From 1940 to 1959, except for war service, he served on the staff of The American Guernsey Cattle Club. The Wests will make their home in the Chicago area.

"For this job, we want someone responsible," the owner of the business explained to the confident applicant before him.

"I'm your man," replied the jobseeker. "Everywhere I've worked, whenever something went wrong, I was responsible!"

PABST CYCLONE RAVENELLA that sold for $2,100. Shown from left to right are: Mrs. Betty Cellentani, Lee O'Connor, the buyers; Sylvester Weiler, Pabst Farms, the consignor; M. B. Nichols and Glenn Casey in the box; and M. J. Leinat shown at the halter.

Curtiss Classic averages $802

The Curtiss Classic Sale, held at Cary, Ill., March 25, saw 48 head selling for an average of $802, reportedly a new high for sales sponsored by an artificial breeding association.

Top price was $2,100 shared by two consignments. Pabst Cyclone Ravenella, Ex., consigned by Pabst Farms, Oconomowoc, Wis., was purchased by Lee O'Connor and A. Cellentani, Adrian, Mich. Aljoan Roburke Clara, Reserve Junior All-American 3-year-old, consigned by Leslie Howard, Dundee, Ill., brought the same price from the Abbey of Gethsemani, Trappist, Ky.

A daughter of "Skyliner" consigned by Harvey Nelson and Son, Union Grove, Wis., sold for $2,000 to Harry Turley and Son, Greenville, Ill., while a daughter of Skokie Design, consigned by Elmwood, Ill., brought the same price from Flat Rock, Ohio, Children's Home.

According to Sales Manager M. B. Nichols, 18 females that had calved once or more averaged $990; 21 bred heifers averaged $752; and 6 heifers calves (all sired by Skyliner), averaged $586.

There were buyers from 11 states and Mexico.

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YOUNG DAIRYMEN — *Getting started in dairy farming* — No. 22

THIS MAINE FFA BOY owned two grade calves as a freshman. Four years later he had 15 head of dairy animals and a half interest in a tractor, plow, rake, and double disc.

Two grade calves started this boy

Although his father owns the farm, they each own their own cattle. Herb has about $4,000 invested in dairy cattle, machinery, land, and buildings.

by Gerald A. Yerxa

HERBERT EDGERLY was born on a farm near Anson, Me., where his family kept only two or three cows to take care of their household needs. His father was a livestock dealer and, consequently, new dairy cows and calves kept coming and going in their barn.

Herb loved these animals, and was under his father's feet in the barn almost from the time he was able to walk. His father says, "I had a tough time keeping him out from under the cows' feet." Herb claimed as his own any new calves that were born, and made valiant efforts to maintain this ownership. However, as a livestock dealer, the father had to sell these calves, and Herb always ended up claiming another newer calf as the one he wanted.

When he was 10, the Edgerly family moved to a larger farm near Madison, Me., where his dad started a small herd of dairy animals. This move gave the young boy the opportunity to raise and keep some dairy animals that really belonged to him.

His father is still a livestock dealer and usually keeps around 22 head of dairy cattle on the farm for sale purposes.

Herb will be the first to tell you that high school vocational agriculture and the Future Farmers of America helped him a great deal to get where he is today. As a freshman, he enrolled in vocational agriculture and had as a project two small grade dairy calves. Four years later, after a lot of hard work, encouragement, and assistance from his parents and vo-ag instructor, he had 15 head of dairy animals and a one-half interest in a large tractor, plows, rake, and double disc.

The author is vocational agriculture instructor, Madison High School, Madison, Me.

Has working agreement . . .

Now that Herb is out of high school, he and his father have a farm working agreement whereby they each own their own cattle, the father owns the farm, and together they own 90 per cent of the machinery on a 50-50 basis. Herb handles and pays his own expenses as does his father. The same is true of income. They use the land and machinery together, sharing the expenses.

This arrangement allows Herb to progress without a great deal of overhead. Together they have constructed a new tie-up for 20 milkers and have made many other improvements in the land and buildings.

While in high school, Herbert was always ready to take part in any vocational agriculture or FFA activities that would improve himself, or help his chapter, fellow students, or instructor.

During his senior year, he was elected president of Maine's FFA Central District which included around 500 members. In June of that same year, he was elected first vice-president of the state, and in October was selected to represent Maine as the official delegate to the National FFA Convention in Kansas City. For two consecutive years he won the district FFA speaking contest and went on to participate in the state contest.

Herb participated in as many of the FFA contests, on all levels, as he could. He especially loved to judge dairy cattle and did an excellent job.

He was chosen as the Star Farmer of the state of Maine during his senior year and was selected to compete in the contest for the Regional Star Farmer, North Atlantic Region at Springfield, Mass.

To top off an excellent high school FFA program, Herbert graduated as salutatorian of his class of 70 members.

Member of the Grange . . .

As a member of the local Madison Grange, Herbert is doing a fine job at working his way through the various chairs. His training in public speaking and the offices held in FFA are helping him in this regard. He has been very active, also, in the young farmers class at Madison High School under the supervision of his former vocational agriculture instructor.

With about $3,000 invested in dairy cattle, $700 in machinery, and several hundred more in land and buildings, Herbert feels that he has just gotten a good start. He gets up about four each morning, takes care of his own dairy animals, and then holds a full-time job in a local dairy. He plans to do this for about five years, or until he gets some of the machinery, land, and buildings he wants to own.

Adequate records help . . .

It never was much of a problem to convince this boy that he could not farm correctly without adequate records. While still a freshman in high school, he began keeping daily production, breeding, and feeding records on his dairy animals and, I feel quite sure that in the seven years since, he has not missed a single entry.

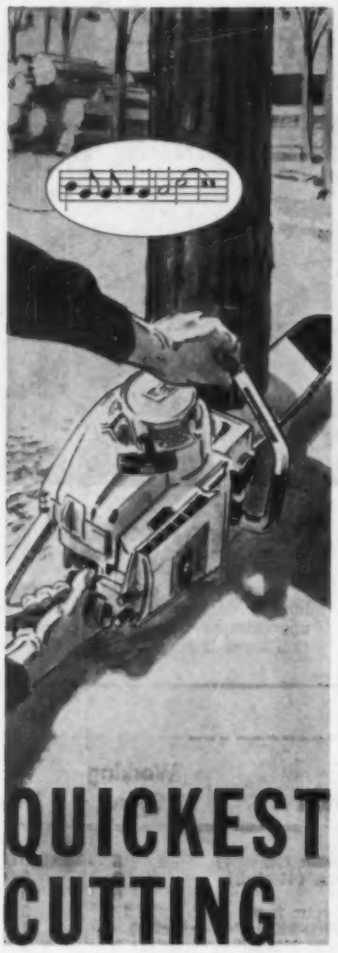
Herb learned early that it does not pay to keep records just to look at. He uses them as he should, as a guide to help in his feeding, breeding, and culling programs.

His production records were the first attempt at any kind of a testing program on the farm. Although these records were not official, they did give him the kind of information he needed to start improving his herd.

His personal vocational agriculture record book of receipts and expenses always was kept in excellent condition. Here again, this training has paid off by teaching Herb the importance of good records and management.

As long as their son showed that he could handle his own expenses, Mr. and Mrs. Edgerly gave him a free rein to go ahead. However, they have never given him much money since they felt that in order to become a good farmer and citizen, he must fully realize the value of a dollar and know where it comes from. This reasoning has given Herb the maturity and sense of responsibility necessary to run his farm business.

He will succeed in his goal as a dairy farmer because he loves farming, is progressive in what he does, is intelligent, has foresight, direction, and is a hard worker. These, I believe, are the traits needed for success for any young dairy farmer. **THE END**



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Illinois GROVER BRINKMAN

FLOAT VALVE

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PREVENTS MOLDY HAY

The folks at Hob Nob Farm in New Hampshire put an end to the moldy hay problem.

Old bales of hay were placed on the ground floor and covered with sisalkraft. The new bales are stacked on this protective layer, preventing any moisture seepage.

New Hampshire C. L. STRATTON

CLEANS WINDSHIELD

Oil smeared windshield in rainy weather? This happens frequently and is a very hazardous condition. Try soaking a rag with a carbonated beverage and wiping windshield with it. Works like magic.

Wisconsin JOHN O. LEE

FOOT PEDAL OPENS DOOR

When this man reaches the milk house door with both hands full, it is unnecessary to set anything down to open the door. A step on the board jerks a cable that is laced through three small pulleys and the wide door opens. It closes slowly giving him plenty of time to walk through.

The treadle is hinged to a piece of heavy plank and is held up for the foot by a screen door spring.

Maryland J. MARSHALL PORTER

HOT ROD

This car is made from an old reel-type lawnmower. We removed the handle and reel, made a framework from angle iron, and attached two wheels from an old wagon onto the back.

The seat is from an old dump rake welded to a piece of pipe with braces fastened to the framework. The throttle was welded to the framework within easy reach of the driver. The handle was cut down and welded to fit between the driver's legs.

This car is powerful enough to pull a large child's wagon with one passenger. It's much easier now to get the chickens fed, since we have a "hot rod."

Minnesota MRS. LEO KRITZECK

GREATEST INVENTION SINCE THE REAPER

FARMECH Mower End Shoe Insert

ONLY $1.98

Post Paid

Adds Many Times More To Mower Value!

• STOPS CLOGGING OF MAINTENANCE HOLE No need to waste precious time stopping to remove troublesome wet grass and trash during mowing operations.

• EASY TO INSTALL Slide insert into groves in mower end-shoe, put in bolt and tighten nut.

No.	Make	Model
100	I.H.	All Models
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At most Farm Equipment Stores or

ORDER NOW FOR YOUR MOWER

SEND $1.98 TO:

FARMECH Mfg. Co.

PARKERSBURG, IOWA

Ask About Our Chain Repair Kit and Complete Line

NO HORNS!

One application of Dr. Naylor's Dehorning Paste on horn-button of calves, kids, lambs—and no horns will grow. No cutting, no bleeding. 4-oz. jar—$1.00 at your dealer's, or mailed postpaid.

H. W. NAYLOR CO. Morris 12, N.Y.

Dr. Naylor's DEHORNING PASTE

Forage Master

New Large Self Unloading Forage Box

Write for details

Low Cost, Too

KASTEN MFG. CORP. Allenton, Wisc.

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Greater capacity and more trouble free operation. Feed 200 head in 10 minutes. The only silo unloader on the market sold on a 30 day money back trial under a $75,000.00 guarantee bond. Also heavy duty auger bunk feeders. Dealership available in some areas. Write for information to —

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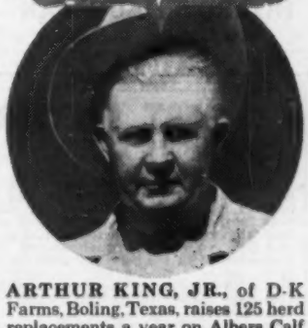
My dairy calves really spread and go!



ARTHUR KING, JR., of D-K Farms, Boling, Texas, raises 125 herd replacements a year on Albers Calf Manna. "I've fed Calf Manna for 15 years. It develops calves early, gives them the spring of rib and heart girth I'm looking for." Get Calf Manna results – heifers go in the string months earlier, produce years longer.

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FREE – Please send me 16-page booklet: "The Business Approach to Dairying."

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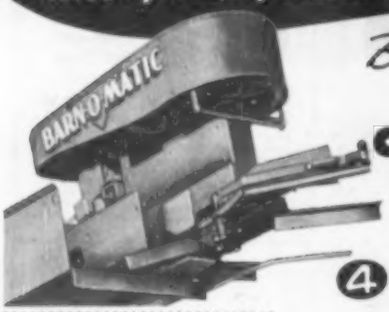
Rated By Quality Conscious Farmers As The—



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★ LESS TO BUY
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4 RUGGED MODELS with all the best features of competition — yet lower in cost.

BARN-O-MATIC, INC.
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Send me information on —
☐ Barn Cleaner ☐ Silo Unloader
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SILO UNLOADERS

- SUSPENDED DESIGN
- SINGLE & DOUBLE AUGER MODELS
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CHOICE DEALERSHIPS OPEN IN SOME TERRITORIES!

Get Details On Early Order Discount Plan!!!

MILK RECORD SHEETS

More and more dairy farmers are realizing that records of milk production should be kept on every cow every day. Not for just a month — or a year — but ALWAYS.

There's no other known way to build up a herd of high producers. Here are the sizes we are prepared to send out right now:

Monthly Records; Two Milkings	Price of a Year's Supply
1 cow, 1 month	$1.00
10 cows, 1 month	1.50
25 cows, 1 month	2.00
35 cows, 1 month	2.50

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10 cows, 1 week	$3.00
20 cows, 1 week	3.50
30 cows, 1 week	4.00

Postage Paid

HOARD'S DAIRYMAN
Fort Atkinson, Wisconsin

Make Hay FAST

WOOD'S
Hay Conditioning
MOWER
Built to do the JOB!

Mow and condition hay in one operation. Your choice of windrowing or scattering hay evenly. Special blades bruise stems, discharge hay loosely. Cut one day, bale the next in normal drying weather.

Also doubles as a rotary cutter
PASTURE CLIPPING GENERAL MOWING
BRUSH CLEARING STALK SHREDDING

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BEST ELECTRONIC SPRAYER

Worden's Electronic Controlled Sprayer brings an entirely new and modern method of applying insecticide to the animal. This sprayer is operated automatically as the animal passes through the applicator and receives 100% coverage. Should the animal stop in the applicator, the sprayer automatically shuts off until the animal moves on. Give your cattle a chance to treat themselves with the correct insecticide that gives the best results for the control of lice, ticks, mosquitoes, flies, horseflies, face flies, screw worms, mites, gnats and other pests.

The chemical for Dairy is recommended by entomologists and approved by the pest control of the United States Department of Agriculture, and all Dairy Associations. You can increase your milk production without expensive equipment, and an insecticide to give you results that you have been looking for.

Our Spray Unit, this year, consists of a non-rustable fiberglass container, and entirely new electronic controls. We guarantee our sprayer to function properly if you use the chemical we recommend.

The Sprayer is available in two different sizes, one for small herds up to 30, and another for herds of 30 or more. To prove our chemical, we furnish the concentrate for you to mix 15 gallons of insecticide, free of charge with each unit, freight prepaid. The concentrate is given to you, to prove that the insecticide which we supply, will give you the best control at a lower price.

WORDEN MANUFACTURING COMPANY
P.O. Box 517 Grand Island, Nebraska

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Please send full information and free literature on Electronic Sprayer.
I have _____ Dairy Cattle
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Name _____
Rural Route _____ Phone _____
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FOLLOWING is a list of plans available through the Hoard's Dairyman Plan Service. Check the plans in which you are interested and mail your order and correct fee to Plan Service, Hoard's Dairyman, Fort Atkinson, Wis.

Along with the blueprint, you also will receive a complete bill of materials.

From the bill of materials, your lumber dealer can figure out the approximate cost before construction work is begun.

Order Coupon:

√ Here	Plan No.	Plan	Working Sheets	Price
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—	538	70-cow pen stable	6	5.00
—	5211	Second home for your farm	12	5.00
—	75262	Bulk milk house (100-240-gallon capacity)	3	1.50
—	75263	Bulk milk house (50-340-gallon capacity)	3	1.50
—	75264	Bulk milk house (260-430-gallon capacity)	3	1.50
—	658	V-type milking parlor	1	.25
—	87170	Individual calf stall	1	.50
—	72668	16-sow farrowing house	2	1.00
—	87111	Fence-line feed bunk	1	.50
—	73103	50-ton, self-feeding haykeeper	2	1.00
—	Bulletin 5	Wagon rack for self-feeding		.25
—	87115	V-neck hay feeding rack	1	.50
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—	5810	Farm wagon	1	Free
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—	73271	Pole and snow fence corncrib	1	.50
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—	548	Safety bull pen door	1	.50
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—	559	Pole-type farrowing house	1	1.00
—	75241	Milking plant—chute type (Floor plan for 4 stalls)	3	1.50
—	75242	Milking plant—single-row, side-opening (Floor plans for 2, 3, and 4 stalls)	4	1.50
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—	85100	Milking plant waste disposal (Plans for septic and settling tanks)	1	.50
—	MW-PS-1	Dairy and beef equipment plans	56	1.00
—	Bulletin 505	Mow hay drying	19	.25

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Please send me by return mail the plan or plans checked above.

I am enclosing $_____ to cover costs.

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R. F. D. Number or Street

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Master Saver FEEDER

FOR HAY OR ENSILAGE
Model #15 $89.50
15 Ft. Long
Price includes freight to all parts of U.S.A. east of Rockies; slightly higher elsewhere

- PERMANENT
- ALL-METAL CONSTRUCTION
- CUTS YOUR FEED COST
- FEEDS 24 HEAD

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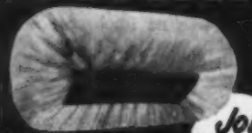
P. O. BOX 10223 DALLAS, TEXAS

It's a TITAN



MILK TANK BRUSH
Job Tested
Unquestionably the world's finest line of dairy brushes. Ask your dealer
FLOUR CITY BRUSH CO. 1501 4th Ave. So. Minneapolis, Minn.
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KICKING COWS "GENTLED" INSTANTLY!

with NEW CATTLE GENTL-IZER
ONLY $14.95 PPD

• Make more money milking than selling her! Amazing new Baster Cattle Gentl-izer safely quiets toughest cow in your herd with gentle pressure that prevents cow from moving its hind legs. Easy to put on, no chains, no danger, no injury. Safe, sanitary. Thousands in use. Try 10 days at our risk on money-back guarantee. Specify breed and size when ordering. Only $14.95 ppd. ($15.95 west of the Rockies). U.S. Pat. 2655900; Canadian Pat. Pend.

PRIDE HYBRID INC. Dept. HD-105 GLEN HAVEN, WIS. (DEALERS AND AGENTS WANTED)

Soften UDDERS! Heal TEATS!

The same antiseptic ointment in which Dr. Naylor Medicated Teat Dilators are packed. Designed to relieve soreness, congestion... You will like this modern, more effective medication for Tender Udders, Sore Teats. $1 at drug and farm stores or write.

Dr. Naylor's UDDER BALM

H. W. NAYLOR CO., MORRIS 10, N. Y.

New! Best and Lowest Cost NECK MARKERS

Guaranteed unbreakable solid Nylon marker and contrasting solid Nylon numerals SMOOTH-FLUSH with marker face (no engraving or stamping indentation to fill up with "mud and molasses"). Numbers stay clean. 7 color combinations.

Direct-from-manufacturer prices as low as COMPLETE 74¢ (postpaid) with Nylon neck cord in quantities.

Write for FREE FOLDER with full size illustrations and prices in both neck cord and neck chain styles.

C. H. DANA CO., INC. Established 1861
Hyde Park 4, Vermont

Dinah Shore to sell dairy products

The executive committee of the American Dairy Association has put the final stamp of approval on plans to sponsor a portion of the Dinah Shore television show beginning with the 1961 fall season. Members of the association's promotional committee studied television possibilities and indicated a strong preference for Dinah Shore if arrangements could be worked out.

The show, currently on Sunday nights, will move next fall to Friday nights, advantageous for American Dairy Association because of the opportunities to deliver a dairy foods selling message prior to the week's big food shopping day.

The show will be broadcast from 9:30 to 10:30 in the Eastern and Pacific time zones, 8:30 to 9:30 in the Central zone, and 7:30 to 8:30 in the Mountain zone. It will be carried on the NBC network but is available on a basis which allows the sponsors to purchase stations on a fairly flexible basis.

American Dairy Association sponsorship will consist of one-fourth of the show, which will be broadcast twice each month, alternating with the Bell Telephone program. By exchanging one of the three-minute commercials with another sponsor, it will be possible for the association to be represented on each of the 20 Dinah Shore shows to be telecast during the 1961-62 season. This would mean two minutes of commercial time one week, one minute the next Dinah Shore week. In addition, there would be opening and closing "billboards" each of the weeks the association is actually a sponsor.

It is estimated the show will reach 10 million homes in its Friday night spot, with an average of 2.5 viewers per set. The audience should include about 33 per cent men, 43 per cent women, 10 per cent teenagers, and 14 per cent children.

Definite starting time for the new season will be announced later, but is expected to be the last week in September or first week in October.

The sponsorship of the Dinah Shore show will mark the return of the American Dairy Association to major nighttime television. During the past year the association has bought participations in the NBC-TV Dave Garroway Today show. The increase in the association's 1961 income from dairy farmers, along with funds allocated for spot television during the year, has made it possible to take on sponsorship of a major nighttime show.

There will be no revision in other advertising plans for 1961 except for the recent cancellation of advertising in The Reader's Digest as a result of that publication's heavy promotion of the very biased Time diet-heart disease story.

Spielman named dean at Massachusetts

A nationally-known authority on nutrition and physiology of dairy animals has been named dean of the college of agriculture at the University of Massachusetts. Dr. Arless A. Spielman, who is presently associate director of the agricultural experiment station at the University of Connecticut, will become dean at the University of Massachusetts, July 1.

Prior to his present affiliation at the University of Connecticut, Dr. Spielman has served on the dairy and animal husbandry staffs at the University of Minnesota, University of Kentucky, Washington State University, and Cornell University.

15 Years proven superiority
Kosch SIDE-MOUNTED FARM MOWER

• Save • Time • Labor • Fuel

FITS ALL POPULAR MAKES AND MODELS OF TRACTORS

15 years of design and production experience have perfected the Kosch side-mounted farm tractor mower. Do 2 jobs at once: pull drawbar type implements without interference; PTO extension permits use of second PTO implement behind tractor; operate field chopper, side delivery rake, hay conditioner or windrower, etc., while mowing.

- Simplicity of design, rugged construction make a Kosch mower less costly to own and maintain.
- Exceptionally large pitman wheel greatly reduces vibration.
- Unique "spring-back" cushioning feature prevents damage from hidden rocks or stumps.
- Only one rotating part, mounted in Timken bearings.
- Mount mower in 3 easy steps in few minutes.

"SEE WHERE YOU'RE GOING -- SEE WHERE YOU'RE MOWING"

Priced at $415 to $455 f.o.b. factory, complete with 7' bar and two knives; 9' models only $22.00 more.

KOSCH MANUFACTURING COMPANY
Dept. HD, Columbus, Nebraska

LAXOTON

LAXOTON combines the desired qualities of a Stimulating Laxative; giving stomachic action alleviating impaction. LAXOTON in proper doses stimulates the flow of digestive fluids and increases Peristalsis. LAXOTON has been successfully used for over 50 years by dairy farmers all over the United States.

10 oz. can.....$1.35

DR. DAVID ROBERTS VETERINARY CO., INC.
WAUKESHA, WISCONSIN

SAVE UP TO 50% on NATIONAL BRANDS of Watches, Binoculars, Luggage, etc.

RUSH $1.00 FOR DISCOUNT CATALOG AND LEATHER GIFT WALLET

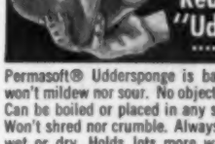
FIDELIS WHOLESALERS
Box 224, Niagara Sta., Buffalo, N. Y.

YOUR OWN BREED ON YOUR STATIONERY

We print stationery for thousands of breeders all over the U.S.A. Distinctive style and personal touch. Pictures of your own breed for you to choose from. Write for stationery circular today.

HOARD'S DAIRYMAN Fort Atkinson, Wis.

PERMASOFT® UDDERSPONGE



Really is the "Uddermost"

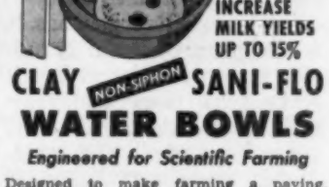
Permasoft® Uddersponge is bacteria resistant—won't mildew nor sour. No objectionable odor ever. Can be boiled or placed in any standard sterilant. Won't shred nor crumble. Always soft and flexible, wet or dry. Holds lots more water than rags or paper. Washes and warms the udder quickly, thoroughly. The cow loves it. Upgrades your milk. Costs less than even paper towels. 35c each, package of 3—8" x 8" uddersponges at your dealer or postpaid for $1.00.

Use this new Roldip® spade to serve ice cream, mashed potatoes—all semi-solid foods, in cooking, as trowel in garden and many other uses. Price $1.00 at your dealer or postpaid.

Countless uses. Practically unbreakable. High quality, one-piece, solid aluminum casting. 8½" long. Bowl is 3½" long and 2½" wide.

SPECIAL BARGAIN
3 Permasoft Uddersponges and 1 Roldip spade postpaid $1.75.
No stamps—cash or check.

ROLL DIPPERS INC., Maumee, O.
Also manufacturers of ice cream dippers and spades since 1933



CLAY AUTOMATION THE WATER

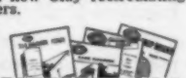
INCREASE MILK YIELDS UP TO 15%

CLAY NON-SIPHON SANI-FLO WATER BOWLS

Engineered for Scientific Farming

Designed to make farming a paying, scientific business with fresher, cleaner water for top milk production. These non-siphon bowls are wider so cows drink from either side—only half as many needed. Low water level won't slop or overflow. Durable all-galvanized steel. Hog raisers—ask about new Clay recirculating non-freeze waterers.

FREE BOOKLETS help you plan low-cost push-button farming—check coupon.



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Send free booklets on ☐ Milking Parlor ☐ Cattle Feeder ☐ Barn Cleaner ☐ Silo Unloader ☐ Crop Dryer ☐ Hog Equipment ☐ Cattle Waterers ☐ Hog Waterers
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6,000 Dealers Coast-to-Coast

Now chop clean and fast with this
New Bear Cat Chop-Master

Here's a *BIG* capacity Chopper and Shredder that cuts green feed either standing or windrowed for green chop feeding or for ensilage. Handles nearly all kinds of grasses and forage in most any condition of tangle or moisture. This new Bear Cat CHOP-MASTER, like several other harvesters, uses the flail-type patent that has proved best for this kind of work. However — the Bear Cat CHOP-MASTER has 15 points of *superior* construction that makes it as outstanding as the Bear Cat Grinder is in its own field. A FREE bulletin shows all these CHOP-MASTER advantages. Send for this bulletin before you decide on what chopper to buy.

CUTS A BIG FULL SIX-FOOT SWATH

- Cuts green feed
- Cuts grass silage
- Shreds and spreads stalks
- Mows weeds
- Tops beets, potatoes
- . . . Plus many other jobs

BEARCAT *Quality* FARM MACHINERY SINCE 1908

WESTERN LAND ROLLER CO. - DEPT. 712-63 - HASTINGS, NEBR.

What you can do to help prevent mastitis

Iosan with "Tamed Iodine" discovery, kills mastitis organisms. Completely safe, it is used freely on sensitive udders and teats

Now you can be taking more effective steps against an outbreak—or spread—of mastitis. With no greater effort. And at no greater cost.

Iosan, with "Tamed Iodine," destroys mastitis organisms. It is the most powerful germicide known to science. Yet it will not chap hands, and is specially formulated for the most sensitive udders and teats. Merely apply with disposable Lazarus Roll Cow Towels.

Cleans equipment, even removes milkstone

Because Iosan also contains a powerful detergent, it is also used to clean milking equipment, bulk tanks and utensils.

It even removes milkstone. Normal deposits wash away. Heavy accumulations are quickly spotted – Iosan turns them a yellow-brown—and easily removed.

Water hardness no problem

Iosan dilutes in cool or lukewarm water. (Producers with large herds enjoy savings in hot water bills alone.) And Iosan's action is not adversely affected by hard water.

Tens of thousands of dairy producers in the U.S. and Canada enjoy maximum security against mastitis with Iosan. Do you?

For information on Iosan and Roll Cow Towels, contact your local supplier or Lazarus Laboratories, Inc., Division of West Chemical Products, Inc., 42-16 West Street, Long Island City 1, New York.

"Iosan" and "Tamed Iodine" are Registered Trade Marks of West Chemical Products, Inc.

ARTIFICIAL BREEDING

In the South . . . cows have shorter heat periods

Heat lasts only about 12 hours. Dairymen checking cows only twice daily may miss 20 per cent of cows that should be bred.

by Charles W. Price, Jr.

IN THE warm, humid Gulf Coast states dairymen have been troubled by the apparent failure of their cattle to come in heat with the same frequency and regularity as dairy cattle in the northern states.

It is now known that dairy cattle in the Gulf Coast states have a shorter estrus (heat) period, about 12 hours on the average, as compared to 18 or 19 hours for cattle in more temperate regions.

For this reason the customary twice-a-day check, in the morning and evening, which may be sufficient in northern states, is not enough in the South.

Many southern dairymen will notice a worthwhile improvement in breeding rates if they will check their herds a third time each day, about noon, especially during the height of the breeding season.

Findings of three-year study . . .

Research workers in the Louisiana State University dairy department believe they established these facts through a three-year study of about 300 dairy cows and heifers of various breeds in the university herd.

Taking part in the study were J. G. Hall, a graduate student working on his doctorate, Dr. E. J. Stone, associate professor of dairying, and Dr. Cecil Branton, professor of dairying.

They were inspired to make their investigation by the fact that most data on duration of estrus in dairy cattle, estrus cycle length, time of ovulation, and best time of service in artificial breeding of dairy cattle have come from more temperate regions, where the estrus period is 18 or 19 hours.

But the little information available from research in the tropics and subtropics, although based on brief studies of small numbers of cattle, indicated estrus periods in the tropics and subtropics might be five hours, or more, shorter than in temperate areas.

Hall, Stone, and Branton wondered whether the high rate of apparent anestrus (failure to come in heat) in Louisiana and other Gulf Coast states, where the climate is very warm and humid much of the year, might be due to short estrus periods not boing noticed by dairymen giving their herds the usual twice-a-day inspection based on an 18-hour or 19-hour cycle.

Between January 1, 1957, and May 31, 1958, they kept under observation a herd of 270 cows and heifers, including 151 Holsteins, 95 Jerseys, and 24 Red Sindhi-Holstein crosses. They observed 1,460 estrus periods with an average duration of 11.9 hours and a median of 12 hours. The shortest estrus noticed was 2 hours and the longest 46 hours.

They checked the herd every two hours throughout the day and night but found, on reviewing their data, there was no important difference between results obtained from the two-hour check and those obtained from a six-hour check.

Using checks made at 6 a.m. and 6 p.m. as a basis for comparison, they found a third check, about noon, resulted in 10 per cent more estrus periods being noticed.

"A fourth check at midnight brought another increase of 10 per cent in the number of estrus periods observed," says Dr. Branton. "But, after all, no dairyman wants to camp in his barn or pasture."

Dr. Branton is convinced, however, that most southern dairymen will find it worthwhile to check their herds more than twice daily.

"We don't believe we found any significant difference in the average length of time between estrus periods in cows in the Gulf Coast states and northern states," Dr. Branton adds. "Close to 70 per cent of the cycles were in the 16-day to 24-day range and were considered normal.

"Average ovulation time in 51 animals checked for this was 12.4 hours after the end of the estrus period, which agrees with information from research in temperate areas. We do have an idea that cattle in our part of the country, with their shorter estrus periods, ought to be bred within 7 to 11 hours after estrus begins. But we don't have enough data to make a flat recommendation."

What causes the difference in length of estrus periods?

That's a question to which no one yet has a detailed answer. "Apparently," says Dr. Branton, "it has something to do with feeding and thyroid activity in a warm, humid climate. That is, it's the climate. But more research is needed to find out exactly why the climate has such an effect."

Meanwhile, a Gulf Coast dairyman who gives his herd a third inspection, about noon, may find an increase of as much as 10 per cent in the number of heat periods in his animals. And a dairyman who gives his herd a fourth check, at midnight, will observe still another 10 per cent of periods that generally are unobserved.

Last but not least, as Dr. Branton warns, the man who checks the herd must be able to recognize estrus when he sees it. And it is not enough to get on a horse and circle the herd at a fast trot.

SPECIAL OPPORTUNITIES

— Where Buyer and Seller Meet —

The rate for advertising in this department is 35 cents per word per insertion, except for "help wanted" and "position wanted" advertising which is only 20 cents per word per insertion. Count address. "J. W. Foley, Route 13, Green Bay, Minnesota," is considered as eight words. Blind advertisements must be signed: "BOX $, care Hoard's Dairyman, Fort Atkinson, Wisconsin" and count as 8 additional words. Count each initial or group of figures as a word. SEND CASH OR CHECK WITH ORDER. Copy must reach us one month ahead of date of issue. NEW ADVERTISER MUST FURNISH REFERENCES. Send order to HOARD'S DAIRYMAN, Fort Atkinson, Wisconsin. Different rate for Livestock Display advertising.

STOCKMEN'S SUPPLIES

NEW! Now treat Mastitis for less than 21c with new Uni-Power infusion! Each dose contains: 100,000 units Procaine Penicillin, 100 mg. Dihydrostreptomycin, 100 mg. Neomycin, 750 mg. Sulfathiazole, 750 mg. Sulfamerazine, 5 mg. Cobalt. Infuse directly into the infected quarter by withdrawing 10cc (1 dose) into syringe with a needle, then replace needle with an infusion tube. Also ideal when drying off a cow—infuse 10cc of Uni-Power into each quarter—allow to remain until the cow freshens. "An ounce of prevention is worth pounds of milk." Recommended by leading veterinarians and dairy experts. Per 100cc bottle (10 doses) $2.35. Six bottles $2.25 each. Order 12 for $25.00 and receive free a syringe, needle and infusion tube. At your Anchor Of New England dealers or order direct from ANCHOR SERUM COMPANY OF NEW ENGLAND, Dept. W-4, Topsfield, Massachusetts. Write for free veterinary supply catalogue and health guide. (Please note: As always, milk should be withheld from human consumption 72 hours after the last treatment.) 9-*

HORN WEIGHTS. Made in 4 sizes ½ lb., 1 lb., 1½ lb., and 2 lbs. Tattoo markers $5.75 postpaid, includes set of numbers, bottle of ink, and full directions. We also carry complete line of ear tags, neck chains, veterinary instruments, supplies, serums, remedies; in fact, everything for the stockman. Write for free catalog. BREEDERS SUPPLY CO., Council Bluffs, Iowa. 4-*

ARTIFICIAL breeding equipment. Largest, most complete line. Write for free catalog. NASCO, Fort Atkinson, Wisconsin. 1-*

ARTIFICIAL INSEMINATION equipment. World's leading supplier. Write for free catalog. INSEMIKIT COMPANY, INC., Baraboo, Wisconsin. 3-*

MASTITIS TESTERS. Send for free sample and literature. LABAY, INC., Pataskala, Ohio. 11-*

BIG SAVINGS on drugs, vaccines and supplies for all livestock. Free catalog. VETSCO, Box 6305, Minneapolis, Minnesota. 23-*

KILL BITTERWEEDS, wild onions and dog fennel with R-H Weed Rhap. Low cost. Will not injure grass, grains; not poisonous. For free information write REASOR-HILL CORPORATION, Box 36HD, Jacksonville, Arkansas. 1-12

SEND CARD for free wholesale catalogue of veterinary supplies and equipment. EASTERN STATES SERUM COMPANY, 1727 Harden Street, Columbia, S. C. 2-23

VETERINARY SUPPLIES (wholesale) free catalog. WESTERN LIVESTOCK SUPPLY, Box 84, Delta, Colorado. 3-*

SPECIAL MASTITIS OINTMENT. (Procaine Penicillin 100,000 units. Dihydrostreptomycin 100 mg., 10% Sulfamerazine, Sulfathiazole Cobalt 5MG. in sesame oil base disposable syringe). Dozen $4.50 prepaid. (Pen-Fz $9.00 dozen syringes). Withhold milk from treated quarter for 72 hours. Quantity savings. KENSINGTON VETERINARY AND POULTRY SUPPLY, Kensington, Connecticut. 6-*

CATTLE MARKERS

ALL-NYLON — NO PAINT to chip out. Many colors. Free catalog. CREUTZBURG & SON, Malvern, Pennsylvania. 10-*

LARGEST, most complete line of cattle markers and livestock supplies. Free catalog. NASCO, Fort Atkinson, Wisconsin. 14-*

DAIRY CATTLE MARKERS, solid brass tag and brass-plated chain for horns or neck. Write for free catalog. GOLDEN ARROW FARMS, Dept. C, Huntington, Indiana. 10-*

E-Z REDD TAGS make identity fast and accurate. Colorful contrasting numbers, wear resistant plastic. Available with neck chain and fasteners. Write for free agricultural supply catalog from the world's leading source of artificial breeding equipment, breeding and show ring equipment, plus hundreds of other farm items. INSEMIKIT COMPANY, INC., Baraboo, Wis. 3-*

CATTLE EARTAGS legible 50 ft., chains, nylon rope sets, anklets. Samples. Nearest dealer. BOCK, INC., Mattoon, Ill. 3-spl.

FARM EQUIPMENT

SAVE 40%. Hydraulic manure loaders. VAUGHN MANUFACTURING, Wascca, Minnesota. 4-*

10-TON TRUCK HOIST $199.99 — $50 down, $50 monthly. Can use agents. DUNBAR, Minneapolis 8, Minnesota. 6-4

FREE CATALOG, welders, kits. Build 330-ampere welder using aircraft generator, plans 25c. DUNBAR, Minneapolis 8, Minnesota. 6-4

NEW EXPANDABLE farrowing crate. Steel $26.50. Introduction offer. THE EVR-KLEEN COMPANY, INC., St. Charles, Minn. 6-4

DEPRESSION PRICES, WE SELL CHEAP, save 75% off new and used tractor parts, crawlers, wheel tractors. 190 makes, models. Catalog ready. Send 25c SURPLUS TRACTOR PARTS CORP., Fargo, N. D. 8-6

BRISTOL KOW MATS, guaranteed for 10 years. Used under thousands of cows throughout America. ⅝th inch thick, all rubber. Sizes to fit all stalls. Save bedding, save cows, save money. Write BRISTOL KOW MATS, INC., Shelton, Connecticut. 8-2

FOR SALE! Electric fence posts made from spring steel material. Three models. Special introduction prices. Write us. E. D. DAHLMAN, Grandy, Minnesota.

FOR SALE: Heal hay dryer. New, never used. Big discount. ANKER FARMS, Rice Lake, Wisconsin.

DAIRY EQUIPMENT

USED BULK MILK TANKS. 200-250-300-400-gallon sizes. Write: P. O. BOX 246, Cedarburg, Wisconsin. 6-*

DAIRY EQUIPMENT

MOJONNIER SPRAY-O-MATIC bulk tank washer. Perfect. $125. EMIL DAHLGREN, Rockton, Illinois.

SILOS

TRIED, PROVEN! Forage saver glass-lined silo, forage saver automatic bunk feeder, Silo-Save ensilage preservative, Even-Flo silage distributors. Farmers, dealers write: SHERROD SILO SALES, Strawberry Plains, Tenn. 7-*

SILO WALLS CRUMBLY? Spoilage around walls? Use DeMuth Penetrating Silo Glaze. Also plastic silage covers. FROBERG DISTRIBUTING COMPANY, Valparaiso, Ind. 8-9

AUCTIONEER SCHOOLS

LEARN AUCTIONEERING, terms, soon. Free catalog. REISCH AUCTION SCHOOL, Mason City, Iowa. 23-*

LEARN AUCTIONEERING. Free catalog! MISSOURI AUCTION SCHOOL, Box 8466-D4, Kansas City 14, Missouri. 19-*

BUSINESS OPPORTUNITIES

FREE PICTURE FOLDER, "How to make $3,000 yearly, sparetime, raising earthworms!" OAKHAVEN-24, Cedar Hill, Texas. 21-*

FARMS WANTED

MORE DAIRY FARMS needed to sell. Extreme Northern Illinois, Southern Wisconsin. H. E. GILBERT, Realtor & Associates, Elkhorn, Wisconsin. (Over 20 years successful experience at your service.) 6-*

WANTED: Florida dairy farm. BOX 640, care Hoard's Dairyman, Fort Atkinson, Wisconsin. 9-2

EXPERIENCED FARMER wants to cash rent modern dairy farm, 200 acres or more. BOX 643, care Hoard's Dairyman, Fort Atkinson, Wisconsin.

FARMS FOR SALE

GOOD SOUND WISCONSIN farms. Pfister Farm Agency, BERT PFISTER, Mt. Horeb, Wisconsin. 15-*

VIRGINIA livestock, dairy farms and country estates. P. M. BROWNING, Realtor, John H. Hitt, Associate, Culpeper, Virginia. 12-*

FREE CATALOG describes Wisconsin farms for sale. Your copy is ready now. Write LOGANWAY, INC., Fort Atkinson, Wisconsin. 1-*

200-ACRE DAIRY FARM, 50 head of cattle, all necessary machinery, all feed, good buildings with beautiful 2-apartment home, regular show place. About $15,000 down payment on all, total price on everything $40,000. Immediate possession. FLOYD JOHNSON, Marshfield, Wisconsin. Telephone Lindsey 1304. 7-4

INFORMATION, selecting farms on productive basis. Easy terms. POWELL'S REALTY, Viroqua, Wisconsin. 8-2

STROUT'S FREE CATALOG! Big bargain book of farms, homes, businesses. Spring-summer issue, nearly 3 times as many property descriptions as any other real estate catalog, twice as many states! 60 years service! STROUT REALTY, 7-AU South Dearborn, Chicago 3, Illinois. 8-4

SOUTH CAROLINA dairy farm now in operation. Detailed information upon request. T. L. HICKS, Newberry, South Carolina. 8-2

MICHIGAN DAIRY, beef cattle farms, to 3,500 acres. Folders free. LYLE MASON REALTY, Gobles, Michigan. 8-*

$9,500 GRADE A DAIRY! Look at that price again! And, only $1,900 down required on 5% financing! 120 Minnesota acres, 50 tillable, 11 alfalfa, woodland pasture handles 30 cows, barb wire fence. On pick-up routes, 3½ miles village. Neat-appearing 3-bedroom home, full basement, kitchen built-ins, furnace, running water. Good 54x60 barn, Grade A milk house, 52-gallon water heater, automatic exhaust fan, poultry house, Finnish steam bath, other improvements. Owner reports $7,000 gross last year! Definitely a "steal" for $9,500, low, low $1,900 down payment! New free summer catalog, beautifully illustrated throughout, bargains coast to coast! UNITED FARM AGENCY, 1304-HD Consumers Building, 220 South State Street, Chicago 4, Illinois.

BLACK HILLS of South Dakota dairy with 760 acres and two fine modern homes. Complete with most up-to-date equipment including Hydraponic plant. 65 cows milking plus 45 dry and replacement. 1960 production 676,167 pounds. DHIA records maintained. Everything goes—owner retiring. Terms available to responsible party. RICHARDS—CABE AGENCY, Spearfish, South Dakota. 9-2

FOR SALE: Dairy farm in North Carolina. Consists of 170 acres good clay loam soil in high state of fertility. In dairy for 30 years, with permanent pastures, 2 permanent upright silos. Large cattle barn with milk house, bulk tank. Cow shed and tool shed with tractors and other farm equipment. 4% milk at $6.50 per cwt. All you can make. 60-head of Holsteins, top blood lines. Mostly registered. 7-room dwelling house, on blacktop highway, 20 miles from famous tourist town, 2 miles from village with excellent churches and schools. Excellent climate conditions. Price for all as one unit, $60,000. BOX 638, care Hoard's Dairyman, Fort Atkinson, Wisconsin.

375 ACRE GRADE A dairy farm in heart of Piedmont. In full operation. Full particulars from HUGH BEAVER, 922 West Front, Statesville, North Carolina. TRiangle 3-4212.

FARMS FOR SALE

DAIRY FARM, Central Wisconsin, 180 acres, beautiful buildings, 4 year old ranch house, small tenant house, 120' barn, large machine shed and hog house, 2 silos, personal property, good terms. Other farms, send for free catalog. STEVENS AGENCY, Spencer, Wisconsin, phone OLiver 9-2291.

300-ACRE Florida dairy farm on west coast. Excellent milk bases. $7.10 per cwt. Latest modern equipment. Now milking 250 head. Gross income $110,000. Small down payment, best of terms. BOX 641, care Hoard's Dairyman, Fort Atkinson, Wisconsin.

760-ACRE DAIRY FARM, Central Wisconsin. 100-head cattle. 2 tractors, caterpillar tractor, combine, baler, chopper, other large machinery. Barn: 36-190, new, 76 steel stanchions, cleaner. Barn: 36x65, open gen. 3 silos. Bulk milk tank. House: 8 rooms, modern. Second set buildings: House, machine shed, garage. $105,000 with $30,000 down. Request pictures, full description. DAIRYLAND REALTY, Abbotsford, Wisconsin.

POSITIONS WANTED

WANTED: Position as herd manager of registered herd. Married, lifetime experience, all phases of dairying. Ten years last position. BOX 639, care Hoard's Dairyman, Fort Atkinson, Wisconsin.

HELP WANTED

WANTED: Experienced artificial breeding technicians. Through our frozen semen program and freezers, areas may be developed in any state. References required. Write PIPER BROTHERS FARMS, Watertown, Wisconsin for details. 8-*

OPPORTUNITIES for men who want steady employment on a large certified milk farm. Paid vacations, sick benefits. Write for information. We want sober and reliable men. WALKER GORDON LABORATORY COMPANY, Plainsboro, N. J. 9-spl

DAIRYMAN in Central North Carolina to learn my operation, later manage it for me as I retire. Qualifications: Experience to know cows, farm machinery. Non-drinker, dependable, industrious worker who will work as father and son, not be affected by criticism (for personal gain) of other help and envious neighbors, but will be employer's right-hand man; defend him, let him prove himself as the employee proves his interest and ability. Large farm, pipeline milking parlor, milk around 60 Holsteins. Give full experience, age, number in family, three references—not relatives. BOX 636, care Hoard's Dairyman, Fort Atkinson, Wisconsin.

SINGLE MAN to work on dairy farm. 40-60 years of age. Farm located in eastern New York. BOX 637, care Hoard's Dairyman, Fort Atkinson, Wisconsin.

HERDSMAN FOR GRADE A Iowa dairy farm. Approximately 30 cows plus young stock. Registered Holsteins. 16 year herd average 462 lbs. fat. Extra good 5-room house. Must be good dairyman able to assume responsibility for all work connected with herd. No field work. If you have the ability as a herdsman will pay salary desired if justifiable, after first of year will go 50-50 on net income of herd. Also on good 160-acre farm if so desired. Give full details first letter. Personal and ability references required. BOX 644, care Hoard's Dairyman, Fort Atkinson, Wisconsin.

HERDSMAN for top producing 120-cow Holstein herd. New Surge double-four sawtooth parlor, pipeline, bulk tank, automatic washing, gas heated. Automatic dry lot feeding year round. Concrete lot. Top wages for a job well done plus bonus, housing, meat, paid vacation and time off. Must be a top milker. References required. F. L. CALHOUN, Manager, Sunnydale Farms, Madison, Nebraska. Phone Globe 4-3964.

WANTED: Married man for top milking herd in Pennsylvania. Modern house furnished. Must be experienced with milking parlor, loose housing and all phases of modern dairy farm. Only top man need apply. Give experience and references in first letter. Write BOX 642, care Hoard's Dairyman, Fort Atkinson, Wisconsin.

SALESMAN WANTED

SENSATIONAL new longer-burning light bulb. Amazing free replacement guarantee — never again buy light bulbs. No competition. Multi-million dollar market yours alone. Make small fortune even spare time. Incredibly quick sales. Free sales kit. MERLITE (Bulb Dir.), 114 E. 32nd, Dept. C-74E, New York 16. 9-2

AGENTS WANTED

AGENTS AND DEALERS: Sell low cost, water-driven milk cooler in Northern states. Write for details. A. MILLER, 276 Conklin, Penticton, B. C., Canada. 5-spl.

WANT TO MAKE $25 or more in a day for part or full time route work? Man or woman. Write McNESS COMPANY, Freeport 22P, Illinois.

SEEDS AND PLANTS

STRAWBERRY PLANTS — certified northern grown Dunlap, Blakemore, Giant Robinson, Premier, Armore 200-$2.50; 500-$6.00; 1,000-$10.00 postpaid. 5,000-$35.00 express collect. Giant Gem, Streamliner, Superfection everbearing 100-$2.50; 300-$6.00; 1,000-$15.00. 20 Mammoth rhubarb or 40 asparagus $1.00. Gladiolus-large flowering, rainbow mixture 50-$1.00. Everything postpaid. Fresh plants, prompt shipment. IOWA NURSERY, Farmington, Iowa. 8-2

CERTIFIED PLANTS. Pay on arrival. Frostproof cabbage, onions, tomatoes, pepper, broccoli, brussels sprouts, collards, cauliflower, sweet potatoes, 200, $1.50; 500, $2.50; 700, $3.00; 1,000, $3.50; 5,000, $16.25. Transplanted plants, 100, $1.50; 500, $5.00; 1,000, $9.00. Leading varieties, mixed as wanted, moss-packed. TEXAS PLANT FARMS, Jacksonville, Texas. 8-2

HAY AND BEDDING

GRADED DAIRY ALFALFA and other grades hay. ART CALLARI HAY COMPANY, Upper Sandusky, Ohio. 20-*

DOGS

GENUINE English Shepherd and Collie Pups. Healthy and strong. Guaranteed heelers. Year's trial. Choice of sex. Spayed females a specialty. Priced right. CLOVERDALE KENNEL FARM, Ackley, Iowa. 18-*

SHEPHERDS, COLLIES. Outstanding Heelers. Watch Dogs. ZIMMERMAN FARMS, Flanagan, Illinois 2-*

SWINE

WISCONSIN FEEDER PIGS for sale. 40 to 60 lbs. Sold direct on weight basis. Also heavier pigs. 48 hour liability. C. ACKER, Middleton, Wisconsin. Phone TE 6-3451. 6-*

OF INTEREST TO WOMEN

$2.00 HOURLY possible sewing our ready cut aprons at home. Spare or full time. Experience unnecessary. Write HANKY APRON COMPANY, Caldwell 17, Arkansas. 19-*

HAVE A PROFITABLE HOBBY sewing aprons, children's wear. Details free. REDIKUT'S, Loganville 15, Wisconsin. 9-spl

AVERAGE $2.00 HOUR sparetime, assembling our lamps. Simple. Easy. No canvassing. Write: OUGOR, Caldwell 24, Arkansas. 4-*

STOP throwing away those boxtops! They're worth money! Some 25c each! Inquire: BOX-TOPS-DD, Cedar Hill, Texas. 6-*

PLASTIC FREEZER CONTAINERS. Square pints, $9.95; quarts, $15 per hundred postpaid. Sample pint, 25c. OXBORO, Box 7031QQ, Minneapolis 11, Minnesota. 8-10

DAIRY CATTLE

NOTICE TO BUYERS — WHEN BUYING DAIRY CALVES OR DAIRY CATTLE, inspect and select cattle personally. If impossible, have them checked by someone in whom you have confidence. Complete understanding in writing between buyer and seller is very important. Should you buy on approval, it is advisable to have animals inspected by veterinarian on arrival before acceptance. Report serious health problems to your state veterinarian. — Hoard's Dairyman.

KENYON BROTHERS FARM serving the dairy farmer for forty years. Large selection of choice Holstein cows and first calf heifers. Fresh and close springers, service bulls. T.B. and Bang's tested. In carload or truckload lots. KENYON BROTHERS CO., Elgin, Illinois. Phone 8Herwood 1-1818. 19-*

CANADIAN HOLSTEINS direct from the farms. Registered, T.B. and Bang's certified. MIDDLESEX HOLSTEIN BREEDERS ASSOCIATION. Phone Lambeth OL 2-2616. Hardy Shore, Glanworth, Ontario. 15-*

HIGH QUALITY Holstein and Guernsey springers and heifers all sizes. J. W. & BILL GEURINK, telephone 322 or 21F31, Baldwin, Wisconsin. 15-*

REGISTERED HOLSTEINS: A few service age bulls, some younger males, foundation females and heifers. Nearly all sired by excellent sires and from classified dams with HIR records. SanMarGale FARMS, Box 365, Lebanon, Ohio. Phone 5-2606. 23-*

WISCONSIN DAIRY CATTLE. Attention: Dairymen and cattle dealers. Top springing cows and heifers. Also open heifers any size. We have drivers available to buy direct from the farmers or will fill orders as directed. GONNERING BROTHERS DAIRY FARM, Route 1, Kaukauna, Wisconsin. Phone — Little Chute, Wisconsin ST 6-3332 or ST 6-2576. 1-12

KEATING BROTHERS FARM offers large selection fresh and springing selected cows and heifers, strictly quality. Buying on order saves time and money. Call or write FORT ATKINSON, WISCONSIN. Telephone JOrdan 3-5905. 5-*

ATTENTION DAIRYMEN and Cattle Dealers: Indiana's largest selection of grade and pure-bred Holstein cattle, bred for production and show type, will sell one or 500. We will ship subject to approval. Cattle eligible for any state. Vaccinated, T.B. and Bangs accredited. Terms to reliable parties. BOTTEMA FARMS, Rural Route #2, Box 206, Indianapolis, Indiana. Phone TE 9-6575. 19-*

DAIRY CATTLE SALES, every Thursday, April through October. Top springer cows and heifers. 400 to 600 head every sale. MATTES LIVESTOCK MARKET, Thorp, Wis. 10-*

WISCONSIN HOLSTEINS for the Southern states. Financing available. Heifers and cows on hand at all times, originating from the best producing herds in Southern Wisconsin. Artificial breeding. Bang's and T.B. tested for any state. Call P. H. ELAM, Marshall, North Carolina, phone 3451, or Mars Hill, North Carolina, 2381 nights. 6-*

CANADIAN Registered Holsteins. Young vaccinated cows and heifers. Buy direct from the farms. Elgin County Holstein Breeders Club. Telephone Talbotville, Ontario 6-R-12. DON SHORE, R.R. #6, St. Thomas, Ontario, Canada. 7-*

FOR SALE: Holstein springing heifers and cows. Good selection of open and bred heifers. R. B. BRICHER, St. Charles, Illinois. Phone JU-4-2347 days, JU-4-2895 nights. 7-24

CHOICE HOLSTEINS. 25 calf yearlings, 25 August freshening 1100 lb. 2-yr-olds. 35 heifers to freshen in April and May. BILL CLOW, Plainfield, Illinois. GE-6-6629. 9-2

TOP QUALITY HOLSTEIN cows and heifers. Bred or open. Calfhood vaccinated. VERNUS STROMMEN, Blanchardville, Wisconsin. 8-6

WISCONSIN HEIFERS (Dodge County) of all ages of top quality. Approximately 150 to 200 head on hand at all times. HICKEY LIVESTOCK, Juneau, Wisconsin. 8-4

FOR SALE: Buy your vaccinated dairy cows and heifers direct from the farmers where quality prevails. GEORGE E. SWANSON, Rice Lake, Wis. Phone CEdar 4-4717. 6-19

HOLSTEIN HEIFERS, springing first calf heifers and young cows. Excellent quality. Write or telephone for prices and details. WALTER McFARLAND, Watertown, Wisconsin. Telephone 840. 1-spl.

MORE SPECIAL OPPORTUNITIES ON NEXT PAGE

POULTRY

by Joe W. Sicer

Confinement rearing tips

A lot of labor is saved by raising pullets in confinement. But savings can be wiped out quickly if you are careless.

CONFINEMENT rearing of pullets is an unnatural procedure. It is a practice that has spread because of economic conditions and not because of any widespread feeling that better pullets can be raised in confinement than on good pasture. In fact, few, if any, will dispute the contention that you can't beat good pasture when it comes to raising sturdy, vigorous, well-toned pullets.

There are, of course, many who feel they can do just as good a job in confinement as on pasture. They will usually be among the first, however, to admit that confinement rearing brings special problems and requires closer attention to details if satisfactory pullets are to result.

Confinement rearing saves labor. It is much easier to take care of several thousand pullets in one house than to cover several acres and dozens of houses for the same number of birds on pasture. It is nice, too, to have water and feeders installed instead of moving equipment, fences, and houses each year.

Confinement rearing usually is a pretty good safeguard against losses from predatory animals. And there certainly is no argument that, in many cases, the land used for raising pullets could more profitably produce corn.

But all of these advantages can go for naught if the poultryman who raises pullets in confinement gets careless about certain details.

Litter must be loose and dry . .

One of the most important of these details is good litter management. The litter must be kept loose and dry. It must be deep enough and of such kind as will absorb large quantities of moisture, yet be loose enough so the moisture will evaporate from it quickly.

The kind of litter will depend largely on your location. Ground corncobs, shavings, peanut hulls, tobacco stems, straw — all can be satisfactory if properly handled. If the pullets are started as chicks in the same house in which they will be raised, begin with about four inches of litter and add to it from time to time. If 7- or 8-week-old pullets are moved to a confinement growing shelter, then it is better to put in at least six inches of litter at that time.

Maintaining good litter condition is not simple. It involves floor space allowance, ventilation and weather, as well as day-by-day good housekeeping. The feeders and waterers should be evenly distributed over the entire house. This avoids extra heavy use of limited areas, thus reducing the tendency for litter to cake over in these areas. Observe habits of the birds and the effect of sunshine in the building. Feeder and/or waterer arrangement should be modified to correct any unusual situation.

If there is excessive dripping around the waterers, a lower level of water in the trough, a change in waterer height, or the use of a wire covered platform may help avoid caking of the litter in that area.

Pole shelters with open sides and not enough roof overhang, as well as ridge ventilators which permit driving rains to beat in can add to the litter problem.

Whatever the cause, as soon as litter caking is noticed get busy forking over the wet areas, breaking up the crusts, removing material that is too wet, and bringing in fresh dry litter if needed.

If a sanitary condition of the litter in the confinement house is not maintained, expect trouble from coccidiosis and intestinal worms.

Ventilation . . .

Houses used for year around confinement raising of pullets can be ventilated most readily if they are well-insulated and equipped with a good fan ventilation system. During cold, or even cool, weather don't cut down on ventilation just to save heat. Whenever there is an ammonia smell, or moisture condenses on ceiling and windows there is not enough ventilation.

In summer, even houses with half or more of the side walls open, to give good cross ventilation, sometimes need additional help from fans. A series of high speed fans, all blowing in the same direction, can be used effectively to get a steady movement of air through the length of the building when large openings, such as double doors, are available at both ends. Foggers set in front of these fans can be a big help during extra hot spells.

Floor space allowance generally considered best is 1 square foot per bird up to 8 weeks and double that for 8 to 20 weeks. We sometimes wonder why 2 feet is needed during the growing period when we often cut down to 1½ or even 1 square foot for laying birds. Maybe it isn't needed, but observation so far indicates birds will grow stronger bodies with more room to wiggle around in while growing.

The ration must be especially designed for growing pullets in confinement. It must contain all the needed vitamins and other nutrients because confined pullets cannot make up deficiencies from pasture grasses. In most cases, confined pullets need to be debeaked. Do it at a day old.

What about perches? You will probably have smoother looking birds if you use perches. It's good practice to train birds early. If you use slat floor laying houses your pullets will be more at home if they are raised in a house with partial slat floors.

Coccidiostats? It's a good safety measure to have one in your feed but be certain it is of a type that will allow the birds to build up an immunity. Don't put all your dependence on the drug. Depend primarily on good litter management and other sanitation procedures.

Keep an extra-close watch on your birds every day. Things can happen fast in a large flock of confined birds. Attention to little details is necessary.

DAIRY CATTLE

CHOICE SELECTION of Holstein dairy cows and heifers, fresh and close springers. T.B. and Bang's tested. Calfhood vaccinated. Registered bulls service age. HARTMAN & SON, Hampshire, Illinois. Phone 2621. 3-*

WISCONSIN HOLSTEINS: Top springing cows and heifers, also open heifers all ages. Have drivers available to buy direct from farmers. Let us know your needs. Call or write MIKE J. BRADLEY, Denmark, Wisconsin, phone UNion 3-5808. 5-6

REGISTERED Holstein and Ayrshire cows and heifers, Bang's certified herds. PEARSON BROS., Waterdown, Ontario, Canada. 13-spl.

HOLSTEIN COWS and springer heifers with size and production. Bought directly from leading herds. Sold at low overhead prices. We fill orders, before you buy contact us. DEAN YODER, Danvers, Illinois. Phone Yorktown 3-4774. 5-spl.

NINE REGISTERED Holstein heifers, records to 667 fat. Bred for fall freshening to Skokie Glamour Boy, 1282185. C. LAWRENCE LARSON, Route 5, Rockford, **Illinois.**

REGISTERED BROWN SWISS. 28-head, 21 sired by A.I. Bred to A.B.S. Calfhood vaccinated. C. P. McBRIDE, Seligman, Missouri. Phone Normandy 2-8801.

CHOICE HOLSTEIN cows and heifers, all ages. Vaccinated. T.B. free. Fieldman available, or will fill orders as directed. Whitewater Dairy Association, DEAN HARNDEN, Whitewater, Wisconsin. Phone Palmyra 358. 1-*

WE ARE NOW READY to fill your orders for Holstein and Guernsey cows and heifers. Shipped direct from farmer to you on commission basis. CHET BURNSTAD & SON, Tomah, Wisconsin. Phone Tomah 406-M or 752-R-12. 16-*

DAIRY CATTLE WANTED

WANT 15, 20 bred, preferably for summer calving, registered heifers, on milk check assignment. SUTTONFIELD FARM, Bamberg, South Carolina.

Sales Announcements

May 13, 1961 — Ayrshires—1961 Grand National Sale, Farm Show Building, Harrisburg, Pennsylvania. 12:30 p.m., EDT. Catalog published in April issue of The Ayrshire Digest. Copy free upon request. Ayrshire Breeders' Association, Box 10, Brandon, Vermont.

May 15, 1961 Ayrshires—John F. Stamy, Jr. dispersal, Newville, Pennsylvania. 11:00 a.m., D.S.T., 22 miles West of Harrisburg, Pennsylvania. 172 head. For catalog write Tom Whittaker, Sale Manager, Brandon, Vermont.

May 17, 1961 — Guernseys—25th Mid-West Invitational sale at Rosewood Farm on U.S. 20, Roselle, Illinois. Wednesday evening 6:00 p.m. 45 head. Catalog on request to Delbert H. Kingston & Associates, Cary, Illinois. Phone MErcury 9-5531.

DISPLAY

NOTICE TO BUYERS

WHEN BUYING DAIRY CALVES OR DAIRY CATTLE, inspect and select cattle personally. If impossible, have them checked by someone in whom you have confidence. Complete understanding in writing between buyer and seller is very important. Should you buy on approval, it is advisable to have animals inspected by a veterinarian on arrival before acceptance. Report serious health problems to your state veterinarian.

— Hoard's Dairyman.

SPECIALIZING IN

QUALITY QUANTITY & SERVICE

Badger Breeders Cattle Sales Division selling registered and grade cattle of all ages

CONTACT

BADGER BREEDERS CATTLE SALES DIVISION

Phone LAkeview 6-2141 Shawano, Wis.

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Midwestern Dairymen ! ! !

Fine foundation **SPRINGING** heifers, yearlings, cattle of all ages. These are sold on commission basis to you. We have buyers throughout the northern dairy states and can supply the finest for the best possible price. One of the midwest's largest dealers serving dairymen for the past 8 years. We will deliver C.O.D. to your farm by our experienced drivers. We are moving 300-500 head per week.

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Highest Guernsey Sire of Breed for Milk

10 dtrs. 11 recs. av.: 14349-582-305-2x-ME.

Highest Living Sire of Breed for Classification

11 classf'd dtrs. av. 87.0%.

ROBERT STEINER, Algoma, Wis., writes:

"The 12 records completed this past year by our CURTiSS daughters av.: 519 lbs. Fat Actual, helping raise our herd average on 33 cows to 13335-3.85-509. My highest Curtiss daughter finished with 19860-4.2%-830. . . . We have our best crop of heifers and yearlings yet coming up, all sired by Curtiss bulls. . . . May I also congratulate Curtiss on the recent purchases of some really great Holstein bulls. I'm referring to Audacious, Hi Hope, Skokie Design and UNH Master Echo."

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Start and stay with CURTiSS. Call your local CURTiSS technician NOW. Or write:

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FIVE DAIRY • FIVE BEEF BREEDS • ONE DUAL PURPOSE

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— Hoard's Dairyman.

CAREFULLY SELECTED SIRES
For the Sound Dairyman

PIPER BROS. FARMS INC.

ARTIFICIAL BREEDING SERVICE

WATERTOWN, WISCONSIN

CARNATION BUTTERBOY COUNT

His sire—Carn. Madcap Butterboy
His dam—A sister of Frasea Ideal VG-[illegible] with 870 F

"Proven" and Highly Classified Sires. Service now available in many parts of the Nation as well as in Wisconsin. Semen available anywhere in U.S. or foreign countries on order.

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FOR A FRIEND?

Send us name and address and we'll mail it out immediately

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CIRC. DEPT., FORT ATKINSON, WIS.

BROWN SWISS

PROFIT MORE *with* BROWN SWISS

Brown Swiss have built their own popularity. Their consistent, profitable production over many years makes them the choice of better dairy farmers everywhere.

The market for Brown Swiss Cattle is strong, and surplus cattle sold to go into other herds bring uniformly good prices. Because of their size, their strength, their ruggedness and their ability to efficiently utilize pasture and coarse roughage, you will find Brown Swiss well adapted to your dairy farm conditions. They are truly the "Farmers Cow." Buy a foundation and you'll soon have a herd.

For more information about the breed write:
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Hilmer Huber
DISPERSAL
50 HEAD
Saturday, May 27th, 1961
FESTUS, MISSOURI
(35 miles south of St. Louis)
A Farmer Breeder Herd with Money Making Ability
For catalog, write
NORMAN E. MAGNUSSEN
Brown Swiss Sales Service
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MOST PROFITABLE COWS

4% MILK
Big Milkers - - Hardy Rustlers
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POLLED AYRSHIRE BULL CALVES

That are from high producing families
That are of Carefree Farms & Penshurst Breeding
That give you excellent type calves
That are priced at prices sure to please

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HOLSTEINS
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Large selection of high grade cows and heifers of all ages. Calfhood vaccinated — lab. tested. We feed well balanced roughage for top production and size. Buy direct and save. Experienced insured transportation.

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Quality Cattle Since 1929
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PUREBRED GUERNSEYS:

Young cows with good DHIR records due with 2nd and 3rd calves; Heifers all ages up to freshening. High production inheritance. From proven cow families and by proven sires.

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SMITHVILLE FLATS, N.Y.

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FOR UNIFORMITY IN YOUR HERD. Select a good typy young bull sired by one of our fine quality sires—Sanfadair F. Predition or Sanfadair L. Princeton, or Fairlawn K. Princeton. They will add quality to your herd and they are priced right. See them at the farm. Highway 2?96—between Stillwater and White Bear Lake, Minn.

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In the heart of the booming PIEDMONT CRESCENT

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MONDAY and TUESDAY
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LAND & EQUIPMENT
WEDNESDAY through FRIDAY
May 31 through June 2

Largest Dispersal in Numbers in The History of The Guernsey Breed -- 1129 Head

- 411 Reg. Guernsey Cows
- 100 Reg. Guernsey Bred Heifers
- 54 Open Reg. Heifers
- 183 Open Crossbred Heifers
- 11 Bred Crossbred Heifers

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HEALTH PAPERS FURNISHED AUCTION DAY . . . TRUCKS AVAILABLE

- Over 3000 acres super rich land — irrigation
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Bargains for Practical Dairymen -- Bloodlines for Breeders

George Coble began development of this showplace in 1942 and paid up to $5,000 per head to get top cattle. Outstanding sires purchased include Curtiss Candy winner with 53 daughters in the herd, Klondike Raider's Crescent whose dam made 3 records over 16,000 M and 800 F. 76 of his daughters sell. 40 daughters of Dunwalke Elector sell. His dam had a record of 20,833 M and 991 F. This herd, on advanced registry tests until a few years ago, made a number of state champion and class production records. Whatever your selection standards may be, it will pay you to be at this dispersal.

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FREE FACTS
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REGISTERED GUERNSEYS
— Today's Best Choice for Highest Net Income

Adaptable, efficient Guernseys earn highest net income. Here are some of the reasons.

- *Guernseys* excel in the ability to convert hay, pasture, silage and grain into the world's finest milk.
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- *Guernseys* produce the finest milk. Guernsey milk is always in demand by distributors because it has the highest solids-not-fat, also, the highest protein, Vitamin A and mineral content of any milk. Guernsey milk is world renowned for its delicious flavor and unique golden color . . . which assures consumer acceptance. Remember, distributors pay producers on the basis of total solids — *not on pounds of milk alone!*
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Add all these important *Guernsey Plus Factors* together and you'll see the reason why the Guernsey breed adds up to highest net dairy profits.

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FREE FACTS — write today

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☐ Send FREE information on how to start a Guernsey Herd, and a copy of "Profitable Dairying."
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ADDRESS_____
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JUDD'S BRIDGE FARMS DISPERSAL
Monday, May 22nd, 1961
NEW MILFORD, CONNECTICUT

80 Brown Swiss
3 BULLS
77 FEMALES

J. B. SUPREME'S CHENNY
Her family sells

1960 DHIA Herd Average:
43 Cows 12,201 milk 586 fat

3 BULLS SELLING include Judd's Bridge Rowe's Supreme whose dam has just finished a 3 yr. 2x record of 1011 F, and Judd's Bridge Outfielder, an Infielder son of the EX 946 F cow, Judd's Bridge Mary Ann B.

77 FEMALES: Selling 2 cows with over 1000 F, 3 from 900 to 1000 F, 3 from 800 to 900 F. Eighteen cows selling have actual records over 800 F.

Judd's Bridge — A Respected Name in Brown Swiss History

SALE UNDER THE MANAGEMENT OF AND CATALOG FROM
NORMAN E. MAGNUSSEN BROWN SWISS SALES SERVICE Lake Mills, Wisconsin

25th Mid-West Invitational SALE

at Rosewood Farm on U. S. 20 — Roselle, Ill.

45 HEAD *Featuring "Guernseys with a Future"*

WEDNESDAY EVENING 6:00 P.M., MAY 17, 1961

3 outstanding young sires out of dams with records up to over 20,000 M on 2x. The females are by such sires as Foremost Quantity Royal, Blakeford Transfer, Rosewood Royal Aristocrat, Nyala Ermine's Bonanza, Jenslee Farm's V. Fame, Yellow Creek Jewel Supreme, Colby's Mr. Minnie, Colby's Gallant, Curtiss Candy Marie's Curtiss, Hominy Hill Viceroy, Curtiss Candy Verity Lad, Fairlawn Hornet's Shiek, etc.

If you want cows and heifers that are bred to work, with lots of dairy, size and good udders, plan to attend.

CATALOG ON REQUEST TO

DELBERT H. KINGSTON & ASSOCIATES

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SERVICE AGE GUERNSEY BULLS

Sired by Gold Star Sires, Fritzlyn Jeanette's Flash, and Blakeford Transfer. Dams backed by 15 years of continuous DHIA testing, 3 years of HIR and DHIR. Records up to 13560-696-5DHIR-305-2x, and many other good ones. Foundation cow has over 5700# fat, lifetime, still on test, classified VG 5 times. All records made under ordinary farm conditions, with machine milking and no hand stripping. Herd classified 6 times. Write for price and pedigree.

THREE CLIFFS FARM

DON FORNER CHASKA, MINN.

PROMISING

GUERNSEY BULL CALVES

Several youngsters sired by Dairyman F's Jado, Elmwood Dairyman Triumph or one of our junior sires. All out of good producing dams with good type. Here is your chance to get a young sire possessing bloodlines bred proven for profitable production. Priced to sell quickly.

Write for descriptions and prices, or come and pick one out.

HOARD'S DAIRYMAN FARM

FORT ATKINSON, WIS.

JEFFERSON COUNTY GUERNSEY BREEDERS ASSOCIATION—Guernseys—registered and grade females, all ages. Also bulls. Free service to buyers. Write or phone: **William Erdman, Route 1, Fort Atkinson, Wisconsin, JOrdan 3-5731.**

GRANDVU GUERNSEYS — Choice young bulls and heifers, all ages. Blue Ribbon Type, size, production breeding. From 2 great Proved high index sires. Flying Horse Masters Royal, Greenfield Music Maker. Foundation Club Calves. The right kind at the right price. Write or come to Grandvu Farms, Wrightstown, Wis.

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Waukesha County can furnish you with most any kind of Guernseys you desire—grade or pure bred. Lee Burlingham, fieldman, at your service. **Waukesha County Guernsey Breeders' Assn., Waukesha, Wisconsin.**

GUERNSEY SALES SERVICE

Six fieldmen of the largest Guernsey Association in the nation are fully acquainted with cattle for sale in Pa., Del. and Eastern States. We have private listings at all times, also regular monthly sales. If you need one, or a car load, write for prices — get quick service. If you want to sell, contact us — low selling charge — prompt payment.

Often requests for cattle come from all over the United States. It may be from your next door neighbor! Send us your listing so we can tell the prospect nearest you.

Pa. Guernsey Breeders' Ass'n.

P. O. BOX 302 CAMP HILL, PA.

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Brigham Jerseys

BUY A TOP FEMALE

Most Herds are the result of a single great cow or two. Our 100 Cow Milking Herd of Jerseys traces to two great Brood Cows.

It's good advice to buy a top female. And where better to buy than from the top 100 Cow Herd, all breeds, for twenty consecutive years over 500 lbs. fat on 2x Milking.

WRITE FOR LIST OF HEIFERS AVAILABLE

BRIGHAM FARM ST. ALBANS, VERMONT

Is your subscription running out? Renew now! Five full years only $3.

I have choice high grade bred Jersey and Guernsey heifers, also fresh and springer cows. All T.B. and Bang's tested. Come and make your selection, or will fill your order or help you buy. Phone University 5-4113. **CLAUDE THORNTON, Route 2, Box 250, Springfield, Mo.**

GOLDEN SUNSET JERSEYS—Born Nov. 11, 1960. A dandy herd sire prospect. His granddads are "Welcome H. L. Torono" and "Biltmore Standard Wonder." You would like him. Send for pedigree and low price.

THE ENNIS JERSEY HERDS, Festus, Missouri.

HOLSTEINS

CARNATION BUTTER BOY EDITOR
Born: March 28, 1960

A BUTTER BOY SON FROM THE MADCAP FAMILY

Carnation Butter Boy Editor, pictured above, is a son of Carnation Madcap Butter Boy from the Madcap family.

His dam is a dau. EX GM Hallrose Progressor from a 1,024 lb. dau. of former World Champion Carnation Homestead Daisy Madcap. His dam has a top record to date of 22,167 M, 922 F. She, her dam, granddam and on back for 7 direct generations average 28,780 M, 1,096.3 F, 3.8% on their best records. She is one of five maternal sisters living and in production in our herd. The two oldest both have records above 1,000 F. A younger sister made 529 lbs. as first calf heifer on 2x and is now going strong on her second lactation. The youngest one made 577 as a Jr. two-year-old on 2x and is just fresh with second calf

This is a well bred bull from a real money making family. They produce heavily, wear well and are regular breeders.

Complete information and price gladly supplied.

Carnation Milk Farm

Address:
CARNATION MILK FARMS
Dept. #302
Carnation, Washington

This month we offer calf Ear Tag 8-199, born Aug. 1, 1960. This calf's dam Curtiss Candy Proud Sparkee is a former All-American show animal and has made two 600 F records. His sire is an EX Carnation Stylemaster son.

For price and pedigree write:

STOFFELL'S MILK FARM

Route 12 Knoxville, Tennessee

Holstein Cows and Heifers

If you're looking for cows or heifers come to Dodge County where good Holsteins are raised. Buy them first-handed and save expenses. We have 250 head of bred and springing grade and purebred Holstein cows and heifers on hand at all times. Can furnish transportation for any number large or small.

LOUIS NEHLS

Phone FULTON 6-4401 Juneau, Wisconsin

DISPERSAL

of PABST-KNUTSON UNIT of Pabst Farms, Inc.

Saturday, June 3 OCONOMOWOC, WISCONSIN

100 Registered Holsteins

★ 39 Bred & Open Heifers Selling
★ 15 Excellent Cows
★ 28 Very Good Cows
★ 56 Cows Selling
★ 5 Bulls Selling
★ 6 Good Plus Cows

(AVERAGE CLASSIFICATION SCORE 86.5)

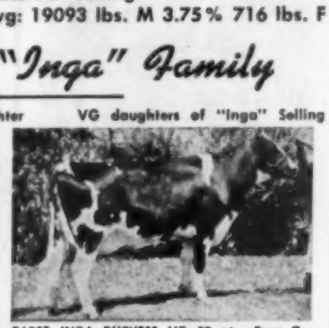
★ 4 Excellent Cows with 1000 lbs. Fat Selling
★ Great Production 42 records Avg: 19093 lbs. M 3.75% 716 lbs. F

Featuring the "Inga" Family

All-American Selling

PLAIN VIEW INGA EX 94 pts., 265d, 6y, 3X, 24776, 4.2%, 1045. All-American age cow 1956. The first & only cow of the breed that is EX & All-American and has 3 records over 1000 F with 4% test.

Dam and Daughter



PABST INGA DUCHESS VG 89 pts. Born October 5, 1957. She is making over 600 F as a 3-yr.-old. She is sired by Pabst Leader Duke EX and from "INGA". Her daughter by Carnation Royal Master EX also selling.

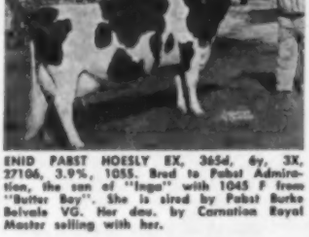
"RES. ALL-AMERICAN SELLING"

PABST QUEEN, Res. All-American heifer calf 1960. 1st. International Dairy Show, Chicago 1960. She is sired by Wis Captain EX-GM and her dam is Pabst Leader Queen VG with 17851 M, 4%, 713 F, who sold for $3300 in the 1960 National Convention Sale.

HER "LEADER" DAU. SELLING

PABST REBURKE RAG APPLE VG, 365d, 7y, 3X, 24629, 3.8%, 926. All-American heifer calf 1947. Res. All-American 2 & 3-yr.-old. Her dam the famous brood cow Pabst Burke Rag Apple De Kol EX-GM dam with 21438 M 744 F.

EX 1000 LBS. FAT SELLING



ENID PABST HOESLY EX, 365d, 6y, 3X, 27106, 3.9%, 1055. Bred to Pabst Admiration, the son of "Inga" with 1045 F from "Butter Boy". She is sired by Pabst Burke Belvale VG. Her dau. by Carnation Royal Master selling with her.

EX 1000 LBS. FAT SELLING

TIME-O-DAY LADY HARK OLGA EX 365d, 3y, 3X, 26429, 3.9%, 1035, (Wisconsin State Record) due to Wis Captain EX-GM. She is sired by Anker Pabst Hark from 513 F dam. Her dau. by Pabst Sir Leader Rag Apple VG, also selling.

"LEADER DAU. SELLING"

PABST LEADER MECHTHILDE VG, 365d, 2y, 3X, 21847, 4%, 873. She is sired by Wis Leader EX-GM and her dam Mechthilde Fobes Leakbrook EX with 24670, 4.3% 1063 F and in lifetime over 132,974 M.

EX AND SELLING

PABST RAG APPLE ROAMER, EX 92 points, 365d, 2y, 3X, 19476 M, 686 F. She has a beautiful heifer calf that is selling with her, sired by Gray View Criss Cross. Her sire is Pabst Raven Rag Apple and from Pabst Roamer Jessie Fobes with 16960 M, 585 F, the next dam with 728 F.

HERD HEALTH

TB ACCREDITED *BANGS CERTIFIED* *CALFHOOD VACCINATED*

Finance: Usual terms by Dairy Credit Co., De Kalb, Illinois

For more information write or phone Paul Capehart at Dairy Credit Co., De Kalb, Ill.

For more information and Catalogs send $1.00.

PIPER BROS. *Sale Managers* **Watertown, Wisconsin**

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— Hoard's Dairyman.

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Registered and High Grade Holsteins, all ages. Experienced fieldman service or will fill orders as directed. We are in a position to handle domestic and foreign shipments of any size. Financing can be arranged. Services of **Arthur F. Bennett, James L. Gordon and Reynold Bennett.**

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REGISTERED AND GRADES

Select foundation Holstein Cows and Heifers with Production, type, and size from our Foundation Wisconsin Herds. Artificial Breeding, Calfhood Vaccinated, Bangs and T.B. Tested.

FINANCING

Arrangements have been made with the Dairy Credit Co., DeKalb, Illinois to finance acceptable purchases. Only a down payment is needed and the balance on monthly installments. "The cows will pay for themselves as they produce." For more information about financing call or write Dairy Credit Co., 112 East Locust Street, DeKalb, Illinois Phone 6-4811.

Plan to come and select your Wisconsin Holstein or we will buy on order at your direction. Fieldman service write or phone.

PIPER BROS.

Box 362 Phone 2170 Watertown, Wisconsin

REGISTERED & GRADE HOLSTEINS

All ages, from DHIA tested herds. Many artificially bred.

RICHLAND COUNTY HOLSTEIN ASSN.

Frank Brewer, Fieldman, Route 3,

Richland Center, Wis. Phone MI 7-2460

WISCONSIN STATE INSTITUTION

HOLSTEINS

"With development of bloodlines in our institution herds that have proved so outstanding in some of the best herds in the U.S.A., and in many foreign countries, we continue to offer the best in breeding stock.

"The Excellent and Gold Medal animals speak for themselves and with intensified linebreeding their offspring run true to form.

"A number of choice bulls from which to select a herd sire always available.

"For information and sales lists, write to

FRED M. WHITEMARSH, Farm Supervisor
STATE DEPARTMENT OF PUBLIC WELFARE
State Office Building, Madison, Wisconsin."

BUY HOLSTEINS STRAIGHT FROM "THE HEART!"

Best selection from one of the world's largest dairy counties. Over 15,000 cattle are on D.H.I.A. test and more than 40,000 bred artificially from some of the top proven bulls. Fieldman sales and service. For information write: **Frank E. Cairns, Fieldman, City County Bldg., Madison, 9, Wisconsin.**

TEL. ALPINE 6-0513 OR CEDAR 3-5538

DANE COUNTY HOLSTEIN BREEDERS CO-OP ASSOC. MADISON, WIS.

JEFFERSON COUNTY HOLSTEIN BREEDERS' ASSOCIATION

REGISTERED and GRADE HOLSTEINS

available from top DHIA accredited herds, many using artificial breeding. Heifers at all ages, good young cows. Financing Available.

Free fieldman services. Write-wire-phone for prices:

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Phone JOrdan 3-2329
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Serving nine counties, in the heart of Wisconsin's dairy land. Foundation registered and top quality grades available, bred for type and production. Over 300 registered breeders in area. All popular Holstein bloodlines. 5 large artificial breeding rings serving the area. Come and make your own selections, or will buy on order at your direction. Fieldman service. Write, wire or phone G. J. STANCHFIELD, Phone WA. 25264, 50 Champion Avenue, Fond du Lac, Wisconsin.

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Serving five counties. Offering select quality heifers and young cows, grade and registered, bred for type and production. Also choice, serviceable, registered bulls. Mostly Burke and Carnation breeding. Free fieldman service.

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Ready for service. Sired by Wis Reward "The bull with the golden pedigree," and out of our "Good Plus" and "Very Good" cows with good records. Also have a large selection of younger bulls. Our prices are very reasonable as we must keep our bulls sold. See our herd of 900 registered Holsteins and ultra-modern milking unit. Visitors are always welcome.

GREEN MEADOW FARMS Elsie, Michigan

ART CAMENZIND'S DAIRY CATTLE

200 to 300 head of quality springing Holstein and Guernsey heifers and young cows, year around. Picked for production, type and clean well formed udders. Herds bought and sold. Satisfied cutomers, lifetime experience. All cattle are well fed and cared for. Mostly calfhood vaccinated and all are tested. Springing heifers shipped on approval, or cattle may be seen anytime. Two miles northwest of

Irvington, Nebraska

ON HIGHWAY 133

PHONE OMAHA, 393-2120

PRODUCTION AND TYPE HERD SIRE

We offer this month a very typy young bull born March 30, 1960. He is well marked with very good type. The dam is ci. VG with a 4-yr-old record of 18395 M and 675 F. The sire is a 601# son of a VG dam. He is sired by the EX and GM Pabst Sir Roburke Rag Apple. This young bull is bred for a lot of production and type. For more information call or write to Carl W. Medsker, phones 2-3319 or 2-3087 Graysville, Indiana.

MEDSKER FARMS SULLIVAN, INDIANA

FOR A BETTER LIVING TOMORROW—
BUY WISCONSIN DAIRY CATTLE TODAY

Over 1900 herds of reg. and top grade Holsteins and Brown Swiss. Fieldman service. Financing available in cooperation with Dairy Credit Corp., DeKalb, Ill.

Fullpail Buying Service, Germantown, Wis.
Phone Menomonee Falls 57M13

H. A. MEYER CATTLE CO.

PLYMOUTH, WISCONSIN

Quality springing heifers and cows available at all times. Have available financing—¼ down—balance in monthly payments.

FIELDMAN SERVICE or WILL FILL ORDERS.

Wisconsin Dairy Cattle

Serving the Dairy Industry for over 50 years

GILSON BROS.

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GREENLEAF, WISCONSIN

Registered & Grade Springing Cows, Springing Heifers, Open Heifers. Fieldman Service. Order Buying a Specialty. Dairy Sale of 100 Holstein cows and heifers the last Thursday of each month at 2:00 p.m.

Write or phone Wrightstown 532-6622 for prices.

WISCONSIN DAIRY CATTLE

Holsteins Guernseys-Brown Swiss

COWS, HEIFERS

ALL AGES

Registered and nonregistered

Come here and make you own selections. Or we will fill your order on direction from you and deliver on approval. Shipments accompanied by the proper health certificates. Delivered in truck load lots to your farm, in our own trucks by experienced cattlemen.

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Phone MI 7-3200 or MI 7-2515

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T.B. & Bang's accredited county. Fieldmen sales & service, or orders filled. For information write, call, or wire Barron Co. Coop. Dairy Cattle Sales Ass'n, Barron, Wis. Glen L. Krahenbuhl, Mgr. Ph: Lennox 7-3202.

TRI-COUNTY HOLSTEIN ASSN., Watertown, Wis., Box 143. We fill orders efficiently for both Registered and Grade Holsteins. We furnish field service for selecting your animals. Fifty years in business—we aim to satisfy. Can furnish references. **Francis Darcey and Sons** — N. on Hy. 26 — 7 miles.

HOLSTEIN DAIRY CATTLE — Registered and Grade cows, heifers of all ages. TB and Bang's tested, calfhood vaccinated. Write or call for free price list. Fieldman service or will fill orders at your direction. **GEORGE PIPER, Watertown, Wis., Phone 2812-W.**

ALABAMA STATE HOLSTEIN SALE

To be held on the State Colosseum grounds located on Highway 231 on the north edge of

MONTGOMERY, ALABAMA SATURDAY, MAY 13

45 REGISTERED HOLSTEINS

including 25 bred heifers, 12 open heifers and senior calves, 8 cows. All carefully selected Illinois, Wisconsin and Alabama cattle.

Dams records up to 800 F. Many dams over 600 lbs.

Sale Sponsored by the ALABAMA HOLSTEIN-FRIESIAN ASSN.

Sale Managers & Auctioneers

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EDWARD RAHMLOW DISPERSAL

Farm located 15 miles North of Highway 41 on Highway 47

Monday, May 15 • Appleton, Wisconsin

55 REGISTERED HOLSTEINS

28 Cows 26 Heifers Bred & Younger 1 herd Sire

(One of Wisconsin's Better Foundation Herds)

15 years' herd average: 11795 M, 3.85%, 450 F. Featuring in this foundation herd you will find 10 milking daus. of Wis Peerless, a son of Wis Joy with 21471 M, 4.2%, 892 F, the next dam, Wis Merth, with 795 F. Also selling 16 daus. of Pabst Leader Paul Burke, a son of Wis Leader EX-GM and Pauline Rag Apple Burke Girl VG with 20244 M, 3.8%, 764 F, also daus. of Tailcorn Pabst Leader EX. Wis Captain EX-GM and Brigeen Goldon Foremost EX-GM. The most famous animal in this herd was Rahmlow Vickery Admiral Min EX 28870 M, 3.8%, 1109 F and 3 other records over 1000 lbs. and a lifetime of 175,862 M. Her "Blood" selling with records to over 17000 M, 735 F.

TB Tested Bangs Certified Calfhood Vaccinated

FINANCE BY DAIRY CREDIT CO., DE KALB, ILLINOIS

FOR MORE INFORMATION & CATALOGS WRITE

PIPER BROS. *Sale Managers* WATERTOWN, WISCONSIN

$100

REWARD FOR EVERY REGISTERED HOLSTEIN

How many grade cattle of all ages are in your barn right now? Multiply the total by $100. Conservatively, that's how much you could increase your assets with REGISTERED HOLSTEINS!

REGISTERED HOLSTEINS build your net worth like a growing bank account . . . open the door to big extra profits with a "second cash crop" of purebred seed stock. In sales the country over, they consistently average at least $100 more than grades.

Remember, too, that REGISTERED HOLSTEINS produce more pounds at less cost . . . more milk, more butterfat, more solids-not-fat and more profit per cow.

Write today for your free copy of "Big Cow . . . Big Profit." It's a brand new book that can open a bright new future in dairying for you!

FIT THE FARM • FIT THE MARKET

Registered HOLSTEINS *Breed of the Times*

THE HOLSTEIN-FRIESIAN ASSOCIATION OF AMERICA

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***Now!* It's Easy for Every Bulk Milk Producer to Have *Positive* Sanitation**

The Klenzade Cleaning Program will provide absolute reliable cleaning and sanitizing of your bulk milk tank. Off-flavors and poor keeping quality caused by psychrophilic bacteria will be eliminated. Film and spots will vanish. Inside and out, your equipment will sparkle — cleaner than when new!

KLENZADE HC-8 ► Balanced chlorinated alkaline cleaner especially formulated to attack fats and protein soil at low temperatures. Lots of built-in cleaning power for "follow-through" action. Excellent rinsing and draining. Non-corrosive.

PL-3 ► A vital part of the Klenzade program. Non-injurious organic acid cleaner that completely dissolves and removes milkstone, mineral-bonded protein, water streaks, film and spots. Used to acidify the rinse water. Drains clean and clear.

X-4 ► Klenzade X-4 Liquid Chlorine Sanitizer leaves no residual film. A sure, safe, rapid action bacteria-killer.

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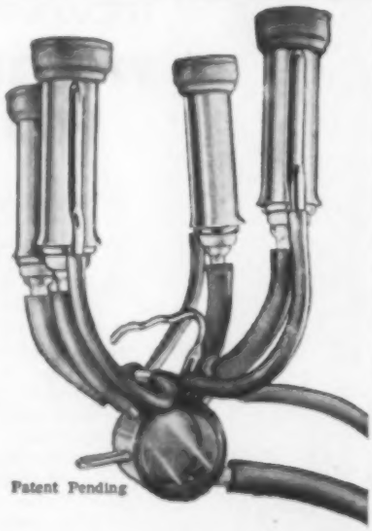

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NOW, a milking unit that gives you all these features!

- **YOU CAN POSITIVELY ELIMINATE OVER-MILKING.** Clear plastic nipple on each teat cup and big clear windows on the Visi-Claw itself let you see the milk pour from each quarter into the bowl.
- **CAPACITY** - extra large bowl helps stabilize vacuum at the teat end. Milk moves OUT of the bowl FAST. It can never flood and backwash the teats.
- **CLEANABILITY** - dirt can't hide behind the clear plastic windows. Completely C.I.P. and you see that it's clean.

For information on the complete Bou-Matic milking systems or how Bou-Matic equipment can improve your present installation

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VETERINARY COLUMN

E. A. WOELFFER, D.V.M.

Teat injuries

Injured teats can be a source of worry and trouble. It takes considerable time to care for them properly and this interferes with the milking routine. Often there is loss of milk and there is always the possibility of infection or mastitis developing from the injury.

Before turning cows out to pasture, be sure there are no loose wires, posts, or parts of fences that can cause injuries. Areas with stumps or brushwood are especially hazardous.

Cows kept in stanchions during the night only should be bedded as carefully as when stanchioned continually during the winter. Stalls which are too short and narrow favor teat injuries.

Other sources of teat injury are long toes and dewclaws, stanchions without partitions, and floors on which cows may fall or slip.

Nature is a wonderful healer but, regardless of how small the injury, it is good judgment to assist nature by protecting the damaged tissue from filth and further injury and irritation. There is no one best way of handling bruised or cut teats. If the cut, tear, or bruise is of any consequence, call your veterinarian as early as possible. He is best qualified to treat and prescribe follow-up procedures. In severe teat injuries, aftercare is most important.

Cut teats in which the cistern has been severed usually can be successfully sutured, particularly if the operation is performed soon after the injury occurs. When a portion of the skin is scraped off, it isn't always necessary to preserve the detached tissue.

Loose tissue should be clipped off and the exposed area covered with mild ointment or healing oil. If the exposed area is large, a bandage is usually necessary to protect it.

Bruised or crushed teats can be very troublesome. Do not damage the tissue more by squeezing the tender teat. Prepare the teat for milking by soaking it in a mild solution of creolin, phenol, chlorine, boric acid, Epsom salts, or other suitable antiseptic. Place the solution in a clean dish or dipper and submerge the entire teat, keeping it there for 15 or 20 minutes. It is advisable to increase the temperature of the solution gradually until you can "barely stand it" with your hand. This will soften the teat, increase circulation, and deaden pain.

If a tube is necessary to obtain the milk, be certain to carefully cleanse the teat opening with alcohol or other suitable antiseptic. Sterilize the cannula by boiling it in water for at least five minutes.

If the teat is covered with debris and straw, wiping it gently with cotton or a strainer pad will permit easy cleansing after soaking. Small, bleeding cuts can be closed with narrow strips of tape.

Use a milking tube . . .

When the teat is badly damaged, it may be necessary to have it bandaged and a metal or plastic tube, preferably one with a removable cap, fixed in place. The tube is held in place with tape or suture material until the soreness has disappeared. Healing occurs in 1 to 10 days. When healed, the teat tube is removed and the quarter milked in the usual manner.

Udder infusions are sometimes used and sometimes systemic treatments are necessary if there is the slightest suspicion mastitis will develop.

CATTLE SLING

Can you give me information on a cattle sling? I have a sick cow that is unable to get up.
Somerset, Ky. S.E.H.

There are several types of slings that may be used for raising cows. One of the newer ones clamps on the outside of the hipbone and is used primarily by veterinarians for calving conditions, inverted uterus, and so forth.

Unless for some very unusual reason, it is not advisable to raise a sick cow with a sling. Cows do not respond well to this type of handling and usually more harm than good is done.

If your cow is unable to get up, it is important to place her in a roomy box stall, preferably with a dirt floor and thickly bedded so she does not develop bed sores and can be turned from side to side several times during the day.

Most important of all, call your veterinarian for a diagnosis and proper treatment.

VACCINATING FOR LEPTO

One of my cows lost a 4-month calf three weeks ago and another one lost a 7-month calf this week. We tested for Bang's and lepto so it was lepto. How would you handle this problem?

1. Wait until five or six cows lose their calves and then vaccinate or go ahead and vaccinate as quickly as possible.
2. Not vaccinate at all.
3. Sell cows as they miscarry.
4. Or what is your idea?
Blackstone, Va. C.R.L.

There are two schools of thought regarding the usefulness or effectiveness of vaccination for leptospirosis because we do not yet have all the facts. Until all the facts are available, I recommend vaccination of the herd immediately with the thought that losses may be kept at a minimum. If the herd is vaccinated immediately, you may experience some additional abortions for a few weeks; after that abortions should cease.

Vaccinations should be repeated at least once within a period of six to twelve months. The decision, however, should be left up to your veterinarian.

MILK FEVER

What is the cause of milk fever in dairy cattle?
Winchester, Ky. L.K.L.

The cause of milk fever is not known. The condition produces a hypocalcemia (deficiency of calcium in the blood) and usually occurs in cows that have had three or four calves. It always occurs in heavy milkers.

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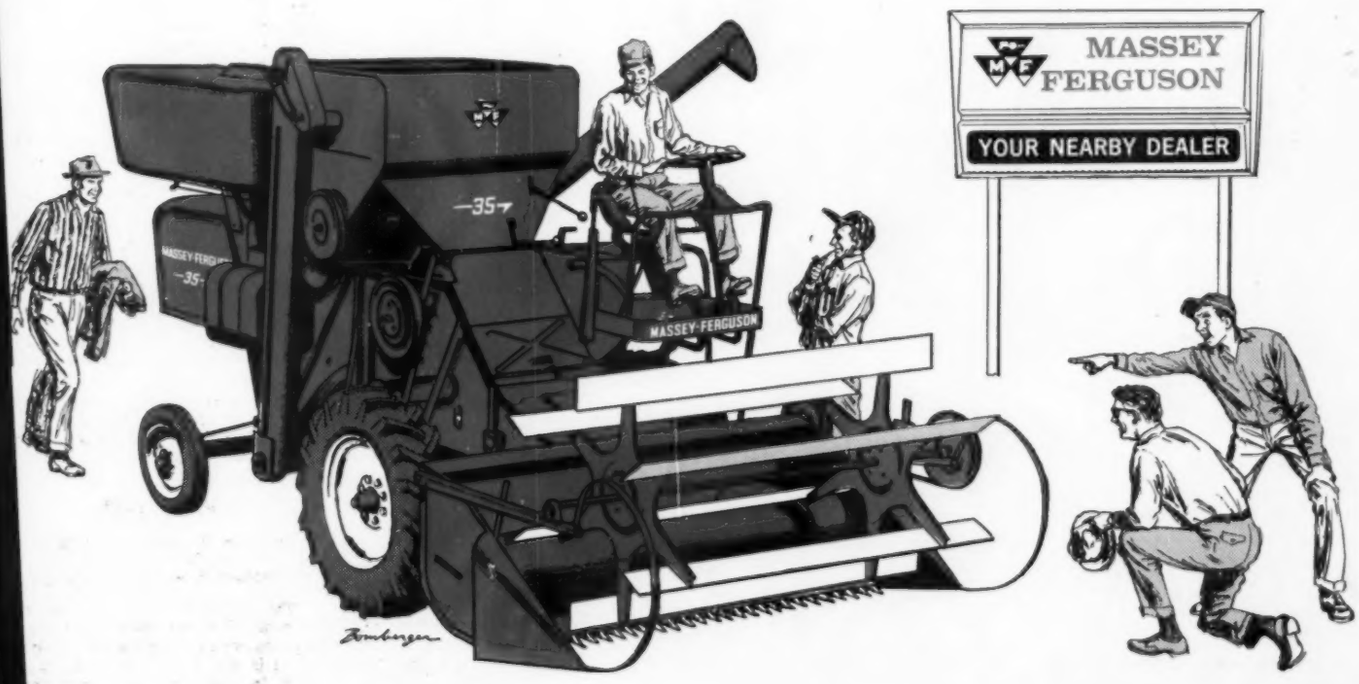
Easiest to buy . . . Savingest to own! That's the big attraction of the popular Massey-Ferguson 35 Self-Propelled! First, its low, low price makes this "8-footer" an easy step up to faster, more efficient self-propelled combining. Second, it's engineered to world-famous standards of combine excellence—and this means big, big savings in many ways. For instance, its factory-sealed bearings cut daily greasing, add years of trouble-free use. It has a rugged, unitized, welded body. It's the most compact self-propelled on the market—clears any 8′ x 8′ door! It's simple to operate. Also the easiest to adjust to do a top cleaning job. And it can harvest dozens of crops! In short, the MF 35 SP saves you time, trouble and storage space . . . manhours, labor and operating costs. But best savings of all: the grain-saving performance of Massey-Ferguson's exclusive "Balanced Separation." It gets you more bushels per acre, more profit per crop! In fact, the "35" out-combines many bigger, more costly machines. And it's available with your choice of time payment plans. So, if you're of a practical mind to go self-propelled this year, be sure to see the Massey-Ferguson 35—lowest priced SP you can buy!



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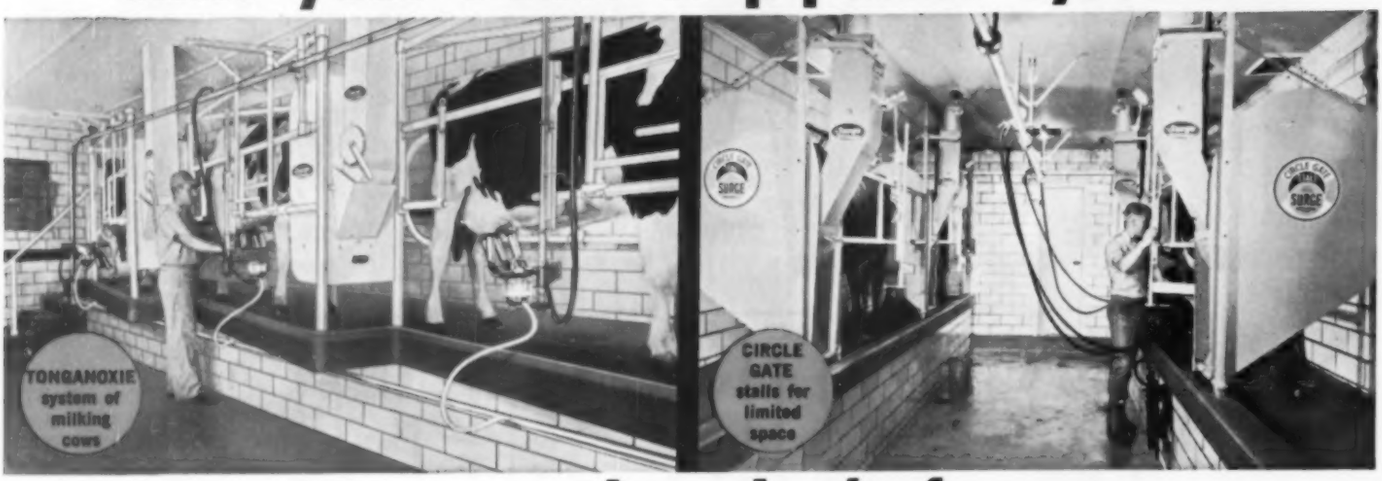

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All Surge equipment can be purchased on EASY TERMS

No matter what type of pipeline system you expect to buy . . . leading dairy authorities say proper selection and use of the milking unit itself are still the most important factors in good cow milking.

Your Surge dealer has two 8-minute films that show this, as never before in the history of dairying. You should see them! They are probably the best guide to your cow milking future. Ask the Surge dealer to show them to you.

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